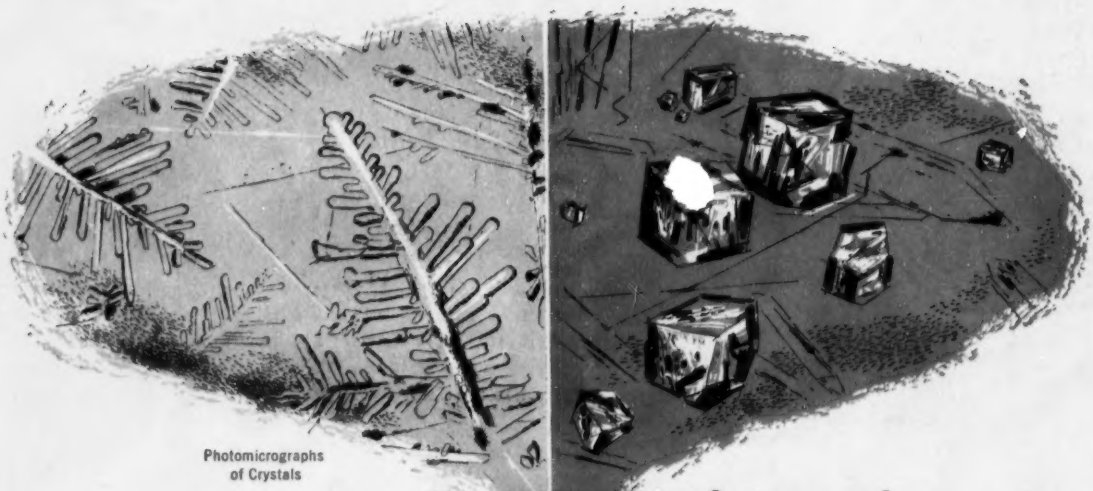
COMMERCIAL FERTILIZER

CONSOLIDATED WITH THE FERTILIZER GREEN BOOK



Photomicrographs of Crystals

## How URANA* solutions reduce caking and secondary bag set

The usual mixed fertilizers contain ammonium chloride salts resulting from reaction of ammonium salts with potassium chloride. These fern-like or needle-shaped crystals tend to bind together, causing caking of the fertilizer at the factory and in the bag.

When URANA 15 (15% Urea) or URANA 9 (9.25% Urea) Solution is used in ammoniation, the urea makes the ammonium chloride form cube-like crystals, with much less binding effect. This means less caking and set, better fertilizer condition, and often a reduction in costs.

This is only one of several advantages obtained from ammoniating with URANA Solutions. For other important aids developed through Nitrogen Division research, consult one of our technical servicemen. Their help is free to our customers.

*Trade-Mark

**Arcadian**

**PRODUCTS FOR PROFITABLE FARMING**

**Nitrogen Solutions**
(Nitrana® and Urana*)

**AMERICAN**
Nitrate of Soda

**A-N-L®**
Nitrogen Fertilizer

**Urea Products**

**Sulphate of Ammonia**

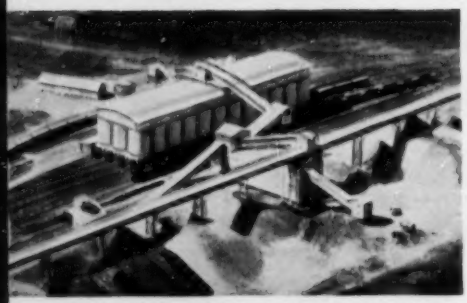
**NITROGEN DIVISION** Allied Chemical & Dye Corporation

New York 6, N. Y. • Hopewell, Va. • Ironton, Ohio • Omaha 7, Neb. • Indianapolis 20, Ind. • Columbia 1, S. C. • Atlanta 3, Ga. • San Francisco 3, Calif.

Three of the A.A.C. Co's electrically-operated draglines at work at our phosphate mines in Central Florida. Bucket capacities range from 9½ to 17 cubic yards. The 17-yard draglines with their 175-foot booms each weigh more than a million and a half pounds and can move 35,000 tons of material in 24 hours. From these rock deposits flow a continuous stream of high quality phosphate rock, assuring a dependable source of supply of AA QUALITY phosphorus products, see list below.

# AA Quality...

## for over 85 years a symbol of quality and reliability



From the air—wet rock storage and drying plant, with dry rock storage silos in background. These silos, 29 in number, have a total capacity of 40,000 tons of dried rock. Under the silos are four runways where 40 railroad cars can be loaded at a time.

### principal AA QUALITY products

**All grades of Florida Pebble Phosphate Rock**
**AA QUALITY Ground Phosphate Rock**
**All grades of Complete Fertilizers** **Superphosphate**
**Gelatin** **Bone Products** **Salt Cake** **Ammonium Carbonate**
**Sulphuric Acid** **Fluosilicates** **Insecticides and Fungicides**
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**Phosphorus and Compounds of Phosphorus**

**THE AMERICAN AGRICULTURAL CHEMICAL COMPANY**

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30 FACTORIES AND SALES OFFICES, SERVING U.S., CANADA AND CUBA—ASSURE DEPENDABLE SERVICE

# HOW DOES Business YOUR ~~GARDEN~~ GROW?

Your business as a fertilizer manufacturer grows best when the farmer's crops grow best. And the growth of both is stimulated by the same outstanding Fertilizer ingredient . . . Organic Nitrogen.

There is no better source of Organic Nitrogen than SMIROW TANKAGE. It is 100% natural organic. It is consistently high in water insolubility and availability, testing approximately 90%. SMIROW TANKAGE is uniform both in color and texture.

The sure way to make your sales grow is to see that correct proportions of SMIROW TANKAGE assure the top quality that farmers seek in your goods.

• *We will gladly send samples and prices.*

**SMIROW TANKAGE**

MAKES PLANTS GROW

## SMITH-ROWLAND COMPANY

NORFOLK, VIRGINIA • GRANITE CITY, ILLINOIS

COMMERCIAL FERTILIZER

ESTABLISHED 1910

November, 1954

Volume 89 No. 5

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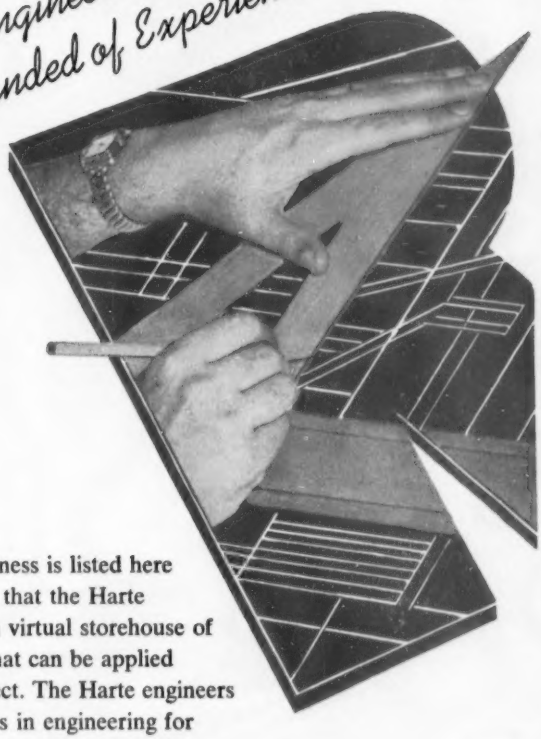
# Which of these processes fits your need?

*Engineering Compounded of Experience*



- SINGLE SUPERPHOSPHATE PLANTS
- TRIPLE SUPERPHOSPHATE
- AMMONIUM SULPHATE PLANTS
- NITRIC ACID
- STORAGE BUILDINGS
- NITRIC ACID ACIDULATION
- NITROPHOSPHATE PLANTS
- INSECTICIDE PLANTS
- SULPHURIC ACID
- WAREHOUSES
- PHOSPHORIC ACID
- GRANULATION PLANTS
- FERTILIZER MIXING PLANTS

**If** your business is listed here you will find that the Harte System has a virtual storehouse of knowledge that can be applied to your project. The Harte engineers are specialists in engineering for the fertilizer industry. Specialists in visualization *and* application. Specialists in handling jobs quickly, economically and efficiently.

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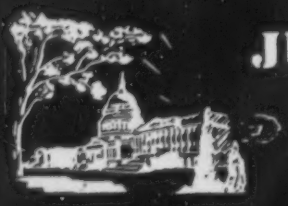


# JUST AROUND THE CORNER

**By Vernon Mount**

TREND-HUNTERS may find some in the 1954 General Election, but they will have to look long and deep. Except that the new faces and the old returning faces are more on the conservative side, it is going to be difficult to learn any real lessons from the totals of November 2.

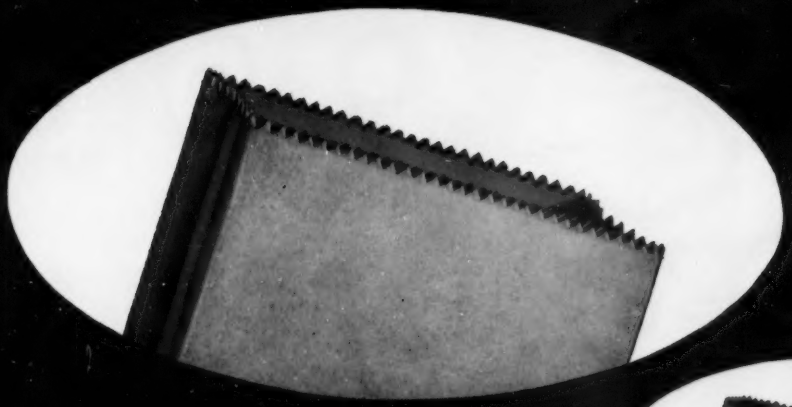
LIKE SHAKESPEARE, who is said to supply an apt quote on either side of any argument, this election is likely to be used along with finger-pointing two years from now, and on the soap-boxes of the Congress in the meantime. But it shows little or none of the farm unhappiness which was expected, and surprisingly little respect for the tradition that a mid-year election brings heavy losses to the party in power.

LOCAL ISSUES, largely, seem to have produced the results, the upsets, the surprises. But one thing sure stands out of the whole confused canvas, and stands out clearly...

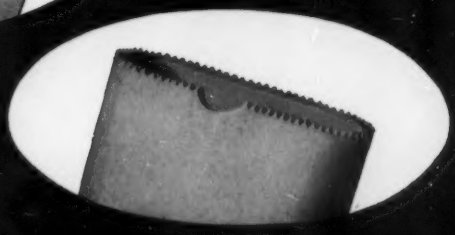
THE SOUTH is no longer solid. In that section, history was made, and politicians will have to remember it in the future.

Yours faithfully,

Vernon Mount



*if it can be bagged...*



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Here are just some of the advantages Bagpak Multiwall Bags give you and your customers.

**• Lower packaging costs • Reduced freight costs • Better stacking of filled bags • Both filled and empty bags require less storage space • Shipping and storage on Bagpak Disposable Pallets cut unloading costs • Maximum protection against sifting, contamination, infestation, dampness • Full measure always emptied • Minimum dust hazard • Advertising message can be printed on face of bags**

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*No. 4 of a series*

**How Bemis makes GOOD multiwall bags for you**

*Herman Johnson, who is in charge of this big tuber at the Bemis Multiwall Plant in Peoria, joined Bemis in the tubing department nine years ago and worked up to his present capacity. His job is one of the most important in a multiwall plant.*

# Experienced Hands Run Our Tubers!

Tubers—the big machines that fold and paste the multiple kraft plies—are the heart of multiwall bag making. Running, they look pretty automatic. But you don't learn to run a tuber by reading an instruction manual. It takes long experience, knowing eyes, deft hands, to keep the plies properly nested and paste properly applied . . . and to control the many other factors that affect the performance of the finished bag. We've been making multiwalls for twenty-seven years . . . so there's plenty of bag-making experience in our twelve multiwall plants strategically located coast to coast.

Bemis

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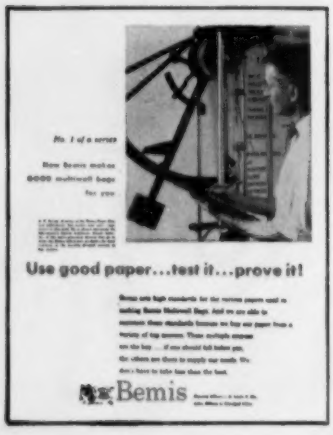

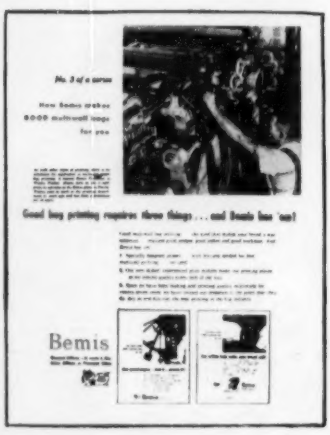

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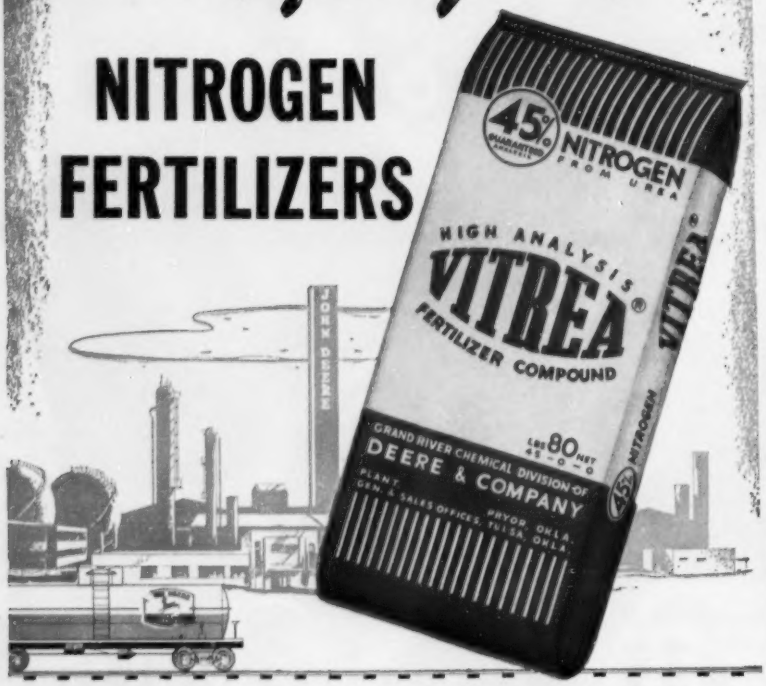
*New High Light in*

# NITROGEN FERTILIZERS




## VITREA . . . A New High Analysis 45% Nitrogen Fertilizer..From Urea

This new "all purpose" nitrogen fertilizer can be used on all crops . . .

- ***EASILY APPLIED BY ANY METHOD***
  . . . drilling . . . top or side dressing . . . plowing down . . . broadcasting . . . airplane . . . or in irrigation systems
- ***EXTRA HIGH NITROGEN CONTENT - 45%***
- ***PRILLED INTO A BEAD-LIKE SHAPE***
- ***SPECIALLY CONDITIONED***
  . . . non-caking and free flowing
- ***COMPLETELY SOLUBLE***
- ***RESISTANT TO LEACHING***
- ***CONVENIENT 80 lb. BAGS***

For your nitrogen needs look to the company famous for quality products for use in agriculture since 1837.

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Write, wire or phone for quotation on your needs. We fabricate our own steel, save two profits on every job.

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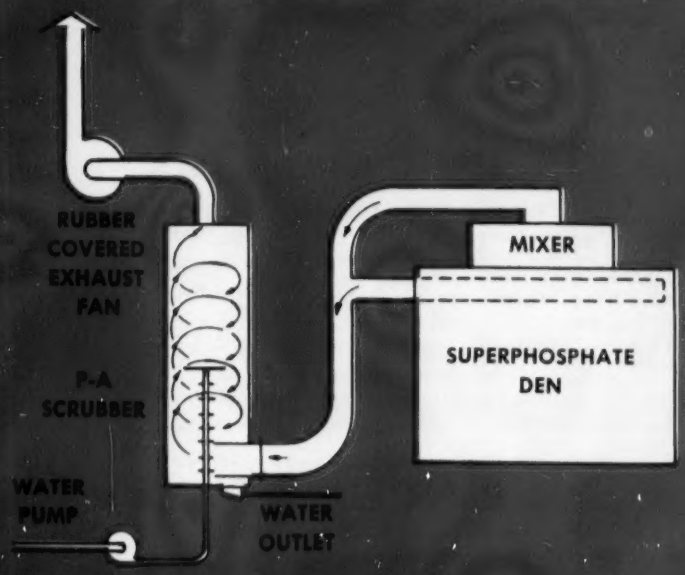
# REMOVES 98% OF FLUORINE

## *from Superphosphate Plant Exhaust Gases*

**CHEMICO P-A CYCLONIC SCRUBBER**




### ADVANTAGES

High Efficiency—Depending on concentration, the Chemico P-A Cyclonic Scrubber removes from 96% to 98% of fluorine ($SiF_4$, $H_2SiF_6$ and HF) from Superphosphate plant exhaust gases. It makes the exhaust *invisible*.

Low Operating Cost—Consumption of water and power is low.

Low Maintenance—Its simple, trouble-free construction and full utilization of corrosion-resistant materials virtually eliminate maintenance problems.

Low Initial Cost—The Chemico P-A Cyclonic Scrubber can be installed at a surprisingly low cost.

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*Write Today Outlining Your Problem*

**P-A VENTURI SCRUBBER**

For more difficult scrubbing problems CHEMICO offers the P-A Venturi Scrubber, a highly effective and economical apparatus for the removal of sub-micron dust, fume and acid mist from industrial gases.

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*Phone (MU 8-7400) or write our P-A Sales Dept. for further information and ask for our Bulletin M-102 on P-A Gas Scrubbers.*

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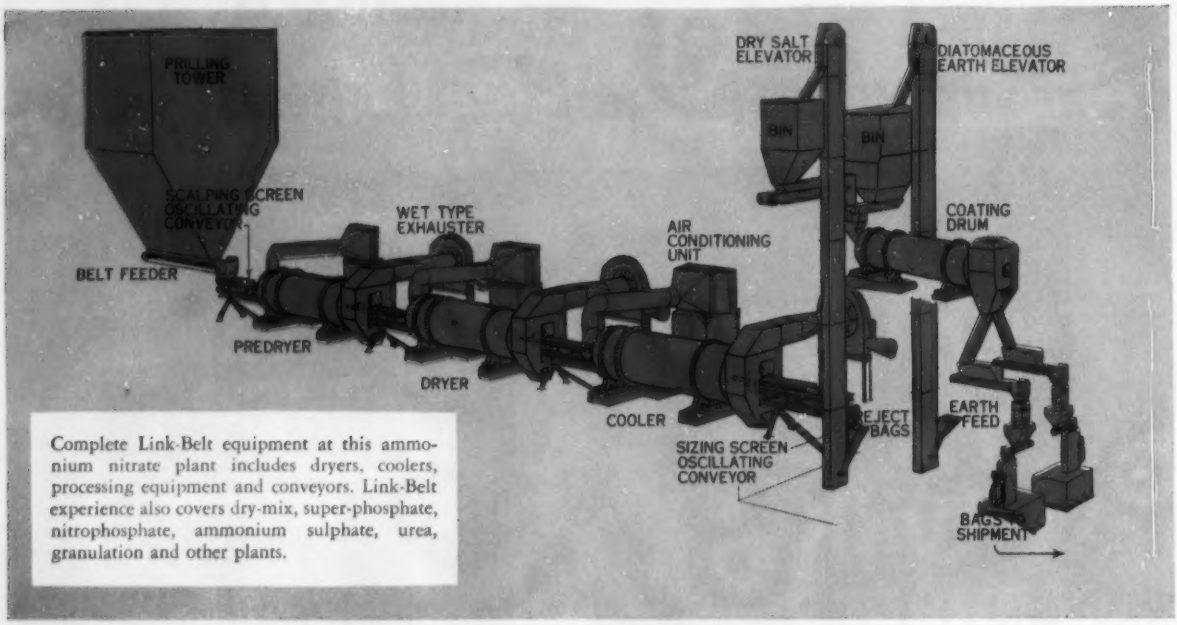
# Why Cooperative Farm Chemicals selected LINK-BELT

## to completely equip its fertilizer plant




Complete Link-Belt equipment at this ammonium nitrate plant includes dryers, coolers, processing equipment and conveyors. Link-Belt experience also covers dry-mix, super-phosphate, nitrophosphate, ammonium sulphate, urea, granulation and other plants.

## Improved methods and Link-Belt equipment assure better fertilizer at lower cost

From prilliag towers to bagging machines, the commercial fertilizer plant of Cooperative Farm Chemicals Association at Lawrence, Kansas, is Link-Belt-equipped. This plant chose Link-Belt to gain the advantages of a single quality source for a broad line of materials handling, power transmission and processing machinery, which assures better fertilizer at lower cost.

What's more, Link-Belt offers a unique turn-key service on all types of commercial fertilizer processes. Under a single-contract, Link-Belt accepts complete responsibility for the design, manufacture and erection of entire plants.

For an analysis of your requirements, get in touch with the Link-Belt office near you. Or write today for your copy of Book 2459.

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*One source . . . One responsibility for Materials Handling and Power Transmission Machinery*

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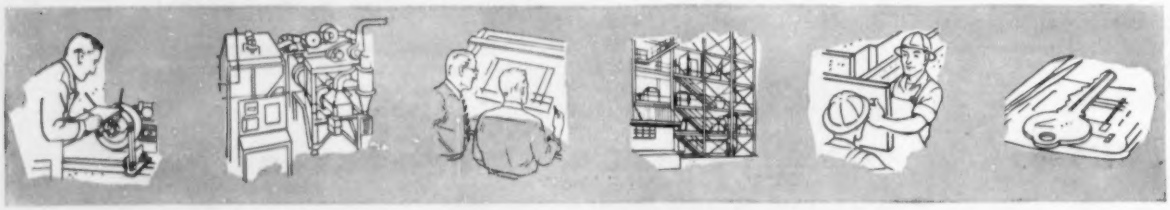
### Here's what Link-Belt offers you under a single-contract responsibility



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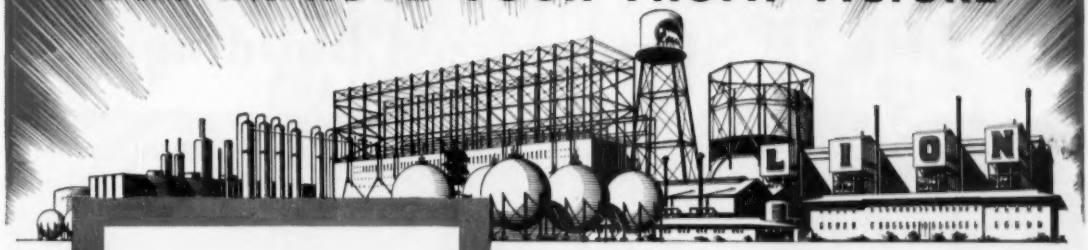
# Buying from A LEADER CAN IMPROVE YOUR PROFIT PICTURE

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**ONE-STOP SERVICE FOR QUALITY NITROGEN FERTILIZER MATERIALS**

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**Lion Ammonium Nitrate Fertilizer** —For formulation or direct application. Improved spherical pellets. Guaranteed 33.5% nitrogen.

**Lion Nitrogen Fertilizer Solutions** —For formulation. Three types to suit varying weather and manufacturing conditions.

**Lion Sulphate of Ammonia** — For formulation or direct application. Uniform, free-flowing crystals. Guaranteed to contain a minimum of 21% nitrogen.

**Because of Lion's leadership in nitrogen fertilizer production in the South, Lion can show you the way to MORE PROFITS.**

**When you buy your complete nitrogen requirements from Lion, you automatically put yourself in a position to improve your profit picture. Here's how:**

1. **You Save Time** • You can contract at one time, with a single dependable source, for all of your nitrogen fertilizer material requirements. And, of course, time saved today is reflected in your profits tomorrow.

2. **You Prevent Manufacturing Delays** • Formulation material that does not have consistent quality can slow down or delay your own production needlessly. With Lion's Quality Control, you can be sure of *quality* materials. The difference will show up in your profit column.

3. **You Solve Problems Quicker** • If you run into a formulation snag, Lion's highly trained Technical Staff will be ready to give you the kind of technical assistance that can only come from a leader. This aid can help improve your profit picture . . . and *it's yours for the asking.*

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# DIXIE GUANO Company

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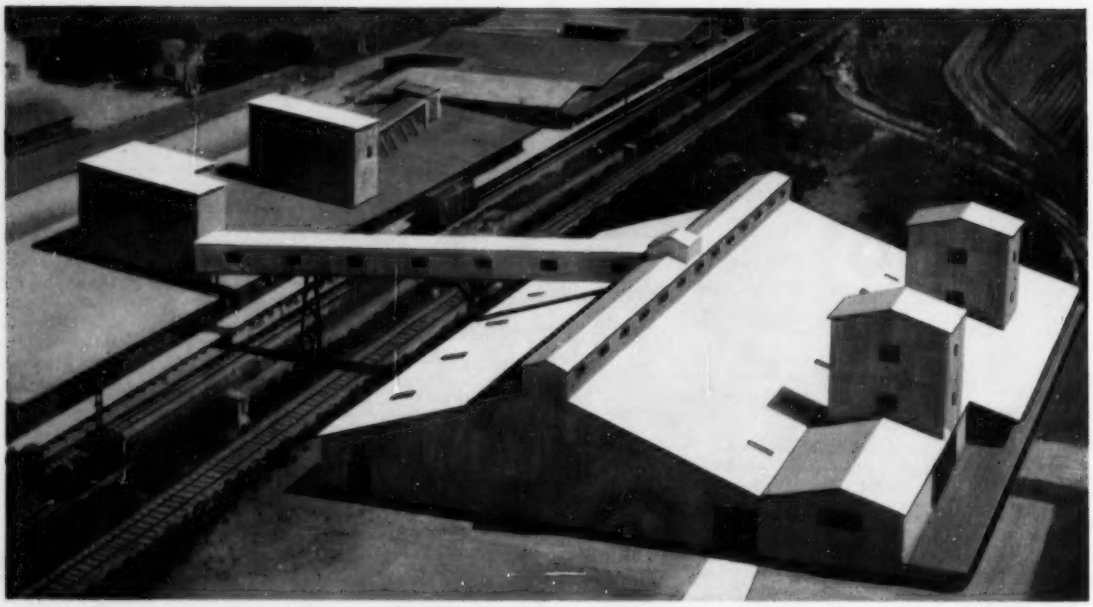

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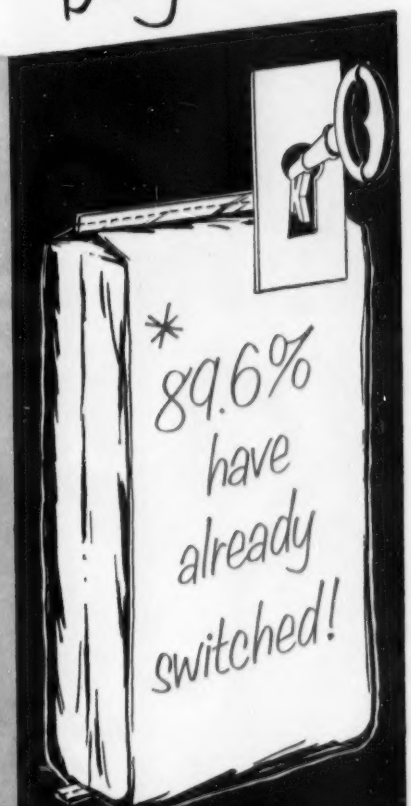


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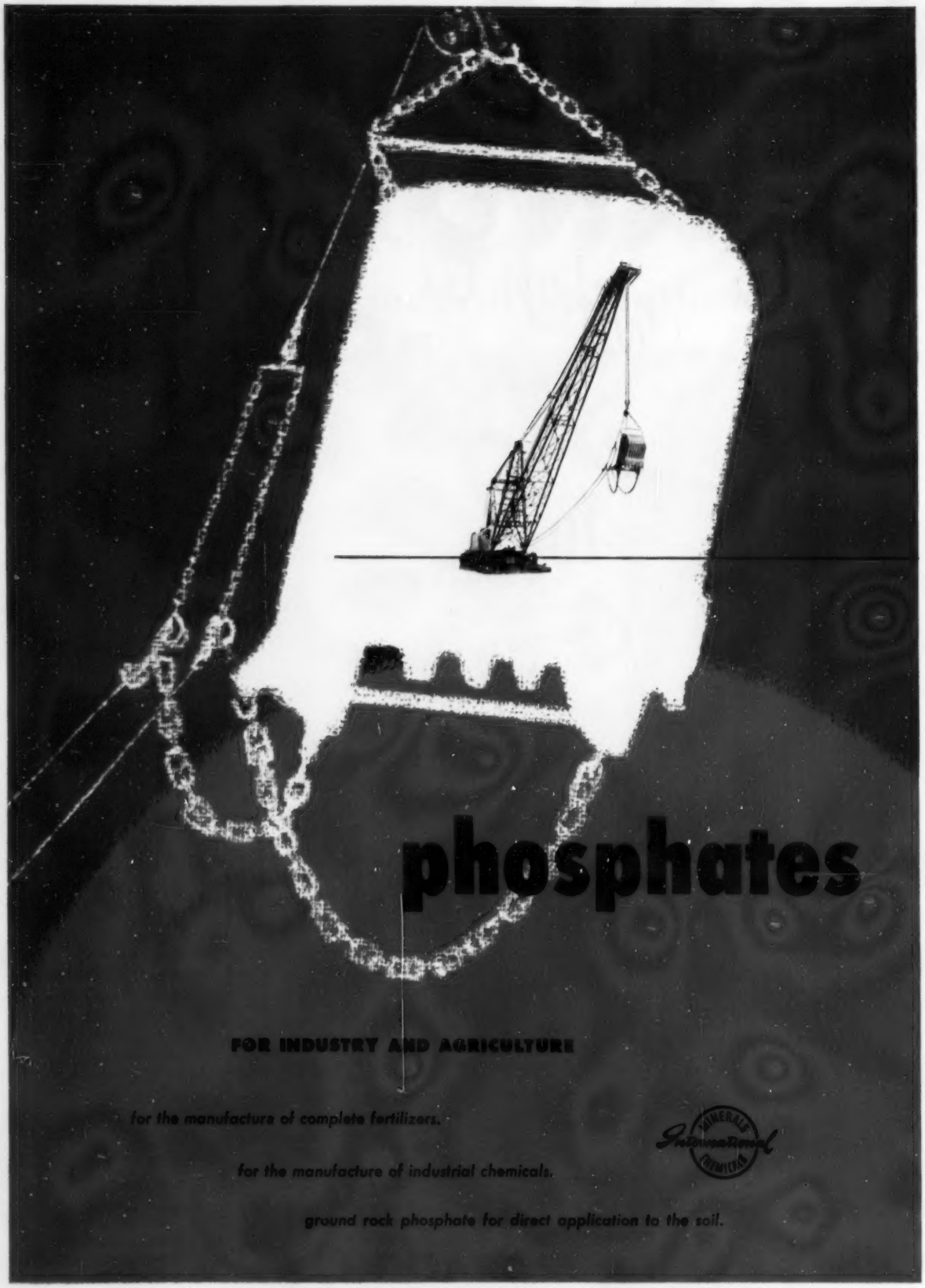


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## THE JOB AHEAD PUBLIC RELATIONS

By Louis Wilson
APFC.

The public relations job ahead for agriculture presents both an opportunity . . . and a challenge. The job is not one for the County Agent or the agricultural worker alone . . . for all industries have farmers as customers, have a stake in the outcome.

To quote my good friend, Bob Reed, Editor of the **Country Gentleman,** "there is no better informed group of people in America than the farmer. There never has been a time when the farmer rated lower with the general public."

Bob said that one of the glaring defaults in farm public relations is the failure to inform the public of who gets what share of the consumer's dollar.

Back in 1946, farmers got 52¢ of that dollar. Now the marketing spread takes 55¢ and the farmer gets only 45¢. Does the consumer know that the hard-working dairy farmer receives much less than one-half of the 22¢ for a bottle of milk, that the wheat-grower gets only 2 3/4¢ out of a 20¢ loaf of bread, or that the wool-grower gets only $5.00 out of a $50.00 woolen suit?

Now, we all will agree that Bob Reed's observations can be multiplied in many areas . . . areas wherein we have an obligation to assist our constituents . . . our farmers . . . with a public relations program.

Just to carry the story a little farther . . . only a few months ago, the House Committee on Agriculture published a little booklet entitled "Farm Prices and the Cost of Food." Let's look at a phase of the report.

"A shirt—a $3.95 cotton shirt—contains about 30 cents worth of cotton. That is what the farmer gets. Cutting back the price of cotton would mean very little in the price of a shirt.

"In the case of tobacco, the pro-

(Continued on page 21)

## *It Seems to Me*

**by BRUCE MORAN**

**It is not surprising to interested observers that our two fine national fertilizer associations are talking of joining hands to create a National Plant Food Institute. These two, NFA and APFC, have never worked at cross-purposes. Somehow each has chosen a part of the big job to be done and has quietly gone about doing it . . . and doing it well.**

**An institute is in line with the thinking of other big industries, and these are proving their worth because they focus all the industry thinking and energy and enterprise into one strong channel. So they get things done better on the national level.**

**Which is by no means to low-rate the local level groups. As our readers know, Commercial Fertilizer Magazine was the first and has been right along the most consistent and ardent advocate of the local level educational society. We believe in them even more, now that the Institute nears reality.**

**Both NFA and APFC have firmly backed the local level idea. Their leaders have appeared on local programs consistently. The highly developed facilities of the national associations have been rendering yeoman service by way of the local level groups. If they join forces this should be even more true, as it can become even more important, in the future.**

**There is still a world of truth in the words of, I think, Ben Franklin—"In Union there is Strength."**

## INDUSTRY CALENDAR

| Date | Organization | Place | City | State |
|---|---|---|---|---|
| Nov. 10-12 | NFA | Hollywood Beach Hotel | Hollywood | Fla. |
| Nov. 15-16 | CFA | del Coronado Hotel | Coronado | Calif. |
| Nov. 19 | S. C. Safety | Cleveland Hotel | Spartanburg | S. C. |
| Dec. 2-3 | Cotton Insect | Adolphus | Dallas | Texas |
| Dec. 5-8 | Ammonia Institute | Jung | New Orleans | La. |
| Dec. 7 | Fertz. Safety Exec. | Spencer Chemical | Memphis | Tenn. |
| | | **— 1955 —** | | |
| Jan. 17-19 | Sou. Weed Conference | Hotel Sorena | St. Petersburg | Fla. |
| Feb. 27-28 | Southern Safety | | New Orleans | La. |

# To meet high-nitrogen recommendations for early spring application . . .

One of the most practical—and profitable—ways to meet today's widespread high-nitrogen fertilizing recommendations is to sell the more popular high-nitrogen mixed fertilizers such as 10-10-10 or 8-8-8 *plus* supplemental nitrogen for direct application. And one of the best materials for early broadcast or plowdown nitrogen application is USS Ammonium Sulphate.

USS Ammonium Sulphate is a dependable nitrogen source . . . all its nitrogen is in the non-leaching Ammonia form . . . proved best for early spring applications. Kiln-dried for consistent free-flow, it won't cake and clog farmers' equipment. It's less corrosive than similar materials. And the free-flowing quality of USS Ammonium Sulphate makes it an easy mixer.

USS Ammonium Sulphate is available in strong, moisture-proof 100-pound bags for direct sale. The distinctive bright yellow bag with the green markings is a familiar and trusted package to most farmers. USS Ammonium Sulphate is also available in bulk quantities for mixing. Get your order in now for delivery in time to meet early spring demand. Contact our nearest Coal Chemical sales office or write direct to United States Steel Corporation, 525 William Penn Place, Pittsburgh, Pa.

## USS AMMONIUM SULPHATE

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UNITED STATES STEEL

### Over 600 To Attend NFA Fall Meeting

More than 600 representatives of fertilizer manufacturers and associated industries will view the future through the eyes of one of the Nation's leading agricultural economists when they gather for the fall meeting of The National Fertilizer Association at the Hollywood Beach Hotel, Hollywood, Florida, November 10-12.

The group also will hear from a famous soil scientist on the subject of organic farming with chemical fertilizers, as well as receiving an annual report from its President.

The featured speakers will be Oris V. Wells, administrator, Agricultural Marketing Service, U. S. Department of Agriculture; Dr. Richard Bradfield, Head, Department of Agronomy, Cornell University, and Russell Coleman, NFA President, E. A. Geoghegan, vice president, The Southern Cotton Oil Company, and chairman of the board of The National Fertilizer Association, will preside at all sessions.

Added features will be previews of the Association's two new sound-color motion pictures now nearing completion. Titles of these new pictures are "Weather Or Not" and "The Big Test." Members also will get their first look at the Association's latest book—"The Care and Feeding of Garden Plants"—now being published in cooperation with the American Society for Horticultural Science. First copies are expected to be off the press November 10.

Mr. Wells will speak on "Farm Income in the Years Ahead." He is particularly noted for his ability to interpret economic situations as they relate to national farm programs. Before assuming his present position, Mr. Wells was Chief of the former Bureau of Agricultural Economics which was a predecessor of the Agricultural Marketing Service.

Dr. Bradfield will raise the question of the desirability, or feasibility of organic matter maintenance in the soil under conditions when commercial fertilizers are available in plentiful supply. He is professor of soil technology as well as head of the agronomy department at Cornell, and has spent many years in research and teaching in the physical chemistry of soils and in colloid chemistry.

Dr. Coleman will report to the membership on current and planned activities of the Association.

The formal convention sessions will end at noon each day to permit those attending to take full advantage of recreational activities at Hollywood, and at Miami which is only 18 miles away. Swimming in the hotel pool or ocean, golf at the Hollywood Beach Country Club, and tennis at the hotel courts all are available to hotel guests. Fishing excursions can be arranged.

The convention will open Wednesday, November 10, with a luncheon and business meeting of the Board of Directors. A buffet luncheon and fashion show is planned for the ladies the same day.

The first general session will begin at 10:00 a.m. Thursday, November 11, with Mr. Geoghegan presiding. Features of this session will be the annual report of President Russell Coleman and the premiere showing of NFA's new motion pictures. This will be followed by a business meeting of the membership. A "shopping special" to Lincoln Road in Miami Beach is planned for the ladies Thursday afternoon.

The Thursday evening program, which features the convention banquet, will begin with a convention-wide cocktail party sponsored by H. J. Baker & Bro. An aquatic show in the swimming pool and on the cabana terrace and dancing under the stars will follow the banquet. There will be no speaking program at the banquet.

Friday's general session, which also will begin at 10:00 a.m., will feature the addresses by Mr. Wells and Dr. Bradfield. Adjournment is scheduled for noon.

Heading the men's and women's hospitality committees for the meeting are Mr. and Mrs. C. C. Shaw. Mr. Shaw is with the Hector Supply Company in Miami.

# NFA and APFC CONSIDERING NEW NATIONAL PLANT FOOD INSTITUTE

**Russell Coleman, president of The National Fertilizer Association, and Paul T. Truitt, president of the American Plant Food Council, October 21 confirmed that negotiations are now being conducted for the consolidation of the two organizations, and made the following statement:**

**The Board of Directors of The National Fertilizer Association, meeting in Washington October 19, voted to recommend to the full membership of the Association approval of a proposal for consolidation with the American Plant Food Council to form a new non-profit corporation to be known as the National Plant Food Institute. The proposal is based on the recommendations of a joint committee of the two associations which met in Washington on October 4.**

**Details of the consolidation plan were distributed this week to NFA members so that a vote can be taken at the fall meeting to be held in Hollywood, Florida, November 10-12.**

**The Board of Directors of the American Plant Food Council met in Washington on October 28 to consider the proposal for consolidation.**

# PROGRAM NFA FALL MEETING NOVEMBER 10-12 HOLLYWOOD (FLORIDA) BEACH HOTEL

**Tuesday, November 9**

8:00 P.M.—Registration Begins (Lobby Entrance to Great Lounge)

**Wednesday, November 10**

9:00 A.M.—Registration

12:30 P.M.—Luncheon and Business Meeting—Board of Directors

12:30 P.M.—Ladies' Buffet Luncheon and Fashion Show

Afternoon and Evening—No formal program. Reserved for golf, tennis, fishing, swimming and other recreational activities

**Thursday, November 11**

10:00 A.M.—GENERAL SESSION—E. A. Geoghegan, Vice-President, The Southern Cotton Oil Company, and Chairman of the Board, The National Fertilizer Association, presiding

Invocation—Rev. Robert Excell Frey, Pastor, First Presbyterian Church, Hollywood, Florida

Annual Report—Russell Coleman, President, The National Fertilizer Association

Premier Showing of New NFA Motion Pictures

Business Meeting

2:00 P.M.—Ladies' "Shopping Special" to Lincoln Road, Miami Beach. (Transportation will leave Lincoln Road parking area for return to Hollywood at 5:00 P.M.)

6:00 P.M.—Cocktail Party—Courtesy of H. J. Baker & Bro.

7:00 P.M.—Convention Banquet

9:15 P.M. to 1:00 A.M.—Aquatic show in swimming pool and on cabana terrace followed by dancing under the stars

**Friday, November 12**

10:00 A.M.—GENERAL SESSION—Chairman E. A. Geoghegan presiding

Address: "Organic Farming with Chemical Fertilizers"
Dr. Richard Bradfield, Head, Department of Agronomy, Cornell University

Address: "Farm Income in the Years Ahead"
Mr. Oris V. Wells, Administrator, Agricultural Marketing Service, U. S. Department of Agriculture

12:00 Noon—Adjournment

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**MEN'S HOSPITALITY COMMITTEE**

Mr. C. C. Shaw—Chairman, Hector Supply Company, P. O. Box 1311, Miami 30, Florida; Dr. J. M. Bellows, Hector Supply Company, P. O. Box 1311, Miami 30, Florida; Mr. J. H. Bryant, Phillips Chemical Company, 504 N. 19th Street, Tampa, Florida; Mr. R. E. Burk, E. I. du Pont de Nemours & Co., Inc., P. O. Box 1314, Winter Park, Florida; Mr. Moultrie J. Clement, Merchants Fertilizer & Phosphate Co., P. O. Box 1306, Pensacola, Florida; Dr. A. T. Cole, Davison Chemical Company, Division of W. R. Grace & Co., Bartow, Florida; Mr. R. E. Goodwin, Ashcraft-Wilkinson Company, 1201 Wallace S. Building, Tampa, Florida; Mr. Walter G. Grahn, H. J. Baker & Bro., P. O. Box 1273, Tampa 1, Florida; Mr. P. J. Gum, Ridge Fertilizer Company, P. O. Box 486, Lake Wales, Florida; Mr. Robert C. Hector, Hector Supply Company, P. O. Box 1311, Miami 30, Florida; Mr. Frank L. Holland, Florida Agricultural Research Institute, P. O. Box 392, Winter Haven, Florida; Mr. C. E. Reger, Hector Supply Company, P. O. Box 1311, Miami 30, Florida; Mr. J. K. Sparkman, U. S. Phosphoric Products Div., Tennessee Corporation, P. O. Box 3269, Tampa, Fla.; Mr. J. W. Whitaker, Swift & Company, Plant Food Division, P. O. Box 1272, Winter Haven, Florida; Mr. E. Meade Wilson, International Minerals & Chemical Corporation, P. O. Box 2567, Mulberry, Florida.

**LADIES' HOSPITALITY COMMITTEE**

Mrs. C. C. Shaw, Chairman—Miami, Florida; Dr. Elsie Bellows—Miami, Florida; Mrs. Moultrie J. Clement—Pensacola, Florida; Mrs. Robert C. Hector—Miami, Florida; Mrs. L. C. Oakley, Jr.—Tampa, Florida; Mrs. C. E. Reger—Miami, Florida; Mrs. J. K. Sparkman—Tampa, Florida; Mrs. J. W. Whitaker—Winter Haven, Florida.

**BOARD OF DIRECTORS — C.F.A. — 1953-54** L. to R.—Executive Secretary & Manager Sidney H. Bierly, San Marino; Howard H. Hawkins, Glendora; William E. Simas, Salinas; Vice President William E. Snyder, Los Angeles; Murray C. McNeil, Hayward; President Beverly H. Jones, Fresno; Howard G. Conley, Berkeley; W. L. Dixon, Jr., Oakland; Secretary and Treasurer Jack Baker, Los Angeles; James M. Quinn, Los Angeles.

**CFA PROGRAM PUBLISHED HERE LAST MONTH.** Our October issue covered the advance story and the actual program of the California Association's meeting which falls in the middle of November. But we thought you'd like to see now the faces of those who have led CFA these past 12 months. Here they are, photographed at last year's meeting.

## LOUIS WILSON

(Continued from page 17)

ducers in 1953 received about $800 million for that part of their crop consumed in the United States. Federal, State, and local taxes on the 1953 crop, by the time it reached the consumers, amounted to approximately $2,100 million.

"A 5-cent peanut candy bar contains about one-half cent's worth of peanuts, and if the confectioners got their peanuts free this would not change the price on a 5-cent candy bar—although a few more peanuts might be added."

Here is another phase of the report worthy of your attention. Retail food prices have not increased as much as the hourly earnings of industrial workers during the past twenty years of farm programs.

Since 1948 in particular, hourly earnings of industrial workers have continued to increase while retail food prices have leveled off and farm prices have declined almost 20 percent.

Industrial workers can now buy more food with the earnings of an hour of labor than in any earlier period in history.

These are not my observations . . . and I certainly do not wish to debate the merits or demerits of any farm program . . . but I do wish to point out that the farmer has a good story to tell and we have some responsibility in telling it.

If you are a worker in the field of agriculture, or a member of an industry that has farmers as their customers, at some time you are going to be injected into a discussion of the so-called subsidies. I maintain that any individual or organization desiring to be a party to the improvement of agriculture public relations can make a contribution without debating subsidies and so-called price supports. On the other hand . . . and I am reporting without prejudice . . . the House Committee on Agriculture has just issued a bulletin entitled "Government Subsidy Historical Review" . . . a summary of the uses of subsidies to advance the aims of Government

**Louis Wilson**

since the first Congress to the present time. Let me read you one paragraph:

"The House Appropriations Subcommittee on Agriculture in January 1954 published figures indicating subsidies amounting to $45,662,835,506 for business compared to farm price-support costs amounting to $1,194,839,023 as represented by Commodity Credit Corporation losses in the price-support program."

Without appraising the intentions of the Committee in issuing the historical review . . . I might say that as a trade association representing a cross-section of the fertilizer industry, we do not promote our own products at the expense of the products of any other industry. We used to say at home . . . let every tub stand on its own bottom . . . and in relation to agriculture, we believe that American agriculture and the American farmers have a good story to tell in terms of service to American consumers and in terms of strengthening the national welfare.

In our mutual efforts to improve the farmer's position in terms of public relations, let us be a party to telling the American public that consumers everywhere are eating better . . . more nutritious food . . . and for less money than at any time in the nation's history.

Let us emphasize in our public relations that the farmer is an important segment in our private enterprise system . . . that he only expects a fair return for his efforts . . . that in terms of the products he sells and the services he renders, he is not the culprit that some folks would have you believe him to be.

Now, as County Agents . . . I know how busy you are . . . how industrious and conscientious you are in translating the complicated findings of agricultural research to the profitable operations of farming.

I am not unmindful that your major obligation, as a leader and worker in the field of agriculture, principally concerns building a more sound land management program. The job of improving the public relations position of agriculture is not mandatory . . . but offers an opportunity and a challenge.

As a trade association having farmers as our customers . . . we are not trying to shun our responsibility . . . or place on your shoulders an additional burden in terms of public relations.

We cannot miss these opportunities for improving public relations of our farmers by saying . . . the job is just too big . . . or we don't have the budget. Many of the opportunities in agricultural public relations involve only a little time or money.

There are common place opportunities, such as the Rotary, Kiwanis, Lions, and other civic clubs, particularly in the larger cities, for telling the farmer's story to groups which will help in improving his public relations.

There is television, which takes some time and money . . . but it's worth it.

There are the women's organizations . . . and here you can team up with the home agent in telling the story of farmer's contribution to the national welfare. Let me digress to say, that our home demonstration agents have what I term a "golden opportunity" to tell the farmer's story, via television, radio, and the women's pages of our great magazines and newspapers. We hear a lot about the forgotten man, but in this field of agricultural public relations, I think the home agent perhaps is the forgotten woman . . . in terms of appreciation for her ability to reach into all homes . . . to reach . . . particularly the housewife, whose opinion of the farmer, is a large share of the kind of public relations he enjoys.

If we are to improve the public relations position of the farmer . . . I believe we must utilize our home demonstration agents in ratio to their acceptability and qualifications to tell the story of the farmer.

Working with farm organizations is important, of course . . . but there are many other organizations that can help. As a trade association, we work with as many organizations as possible in creating more interest in sound land management . . . but just recently, we have become actively concerned with the farmer's public relations . . . for he is our customer. We are now preparing, in cooperation with one of the great land-grant colleges, a television film . . . primarily devoted to improving the farmer's public relations with consumers everywhere. We need to do more . . . and we will do more. But, the job is never-ending . . . and at best, the combined talents of all of us concerned with the welfare of agriculture, must be used.

Perhaps I should have mentioned it before . . . but I think too often the general public regards the County Agent as a specialist concerned only with farmers and their problems. We know that is not so . . . that you are county agents for your entire county or community . . . that your contributions toward improving the efficiency of farming is reflected in the market basket . . . is reflected in a higher standard of living . . . and in the economic well-being of your community. I would like to say . . . and I am reasonably sure of my statement . . . that I don't believe the housewife knows or the urban resident in general knows . . . just what you and your efforts . . . and the resulting efficiency in farming means to her high standard of living or the national welfare.

I would like to have you view the opportunities of the extension service as an opportunity for the extension of service in terms of public relations. In this extension of service, you would go far beyond the call of duty in terms of promoting a more successful farming system and to a large extent, you would utilize the many specialists and authorities at your land-grant college for the ammunition necessary to tell this story that badly needs telling . . . of the farmer's contribution toward the strengthening of America.

## New Fertilizer Book

By Vincent Sauchelli

Fertilizer manufacturers and technologists will be pleased to learn that a revised second edition of Dr. Vincent Sauchelli's popular book, Manual On Fertilizer Manufacture, has just been released. Published by the Davison Chemical Company, Division of W. R. Grace & Co., Baltimore, Maryland, this text is priced at $4.50 per copy.

The fertilizer industry has witnessed many changes in recent years—both in regard to its products and manufacturing processes and techniques. It is to reflect these new advances that Dr. Sauchelli has revised and expanded his earlier work. New or enlarged sections deal with new developments in fertilizer formulation, plant equipment, nitric acid acidulation processes, use of surface active agents, etc. Other new sections are devoted to the plant organization, accident prevention, and chemical control.

Written in easy-to-read, non-technical language, this book is intended to provide fertilizer plant personnel with a general understanding of the raw materials and manufacturing processes employed by the industry. It is meant to serve as a practical handbook, not a detailed text. This second edition should prove to be as widely accepted as the previous edition.

**Dr. Sauchelli**

## Weed Conference January 17-19

Plans are moving ahead rapidly for one of the largest conferences on weed control ever held in the South, it was announced recently by Dr. Warren C. Shaw, President of the Southern Weed Conference.

Dr. Shaw, who is a USDA Agronomist in the Section of Weed Investigations at Beltsville, Md., said sessions of the Eighth Annual Meeting would be held at Hotel Soreno in St. Petersburg, Florida, on January 17 through 19.

High on the agenda will be weed control in field crops, weed control in cotton, agricultural engineering problems in weed and brush control, extension aspects of weed control, physiological problems in herbicidal investigations, control of woody plants, and weed control in horticultural crops and special weed problems.

Barrett L. Collier, program committee chairman, said that a complete program would be released at a later date. Attending will be representatives from state experiment stations, USDA, extension services, the agricultural chemical and farm equipment industries, vocational agriculture and the farming industry.

The Conference president pointed out that arrangements have been made with the management of the Soreno Hotel for special rates for individuals attending the Conference. Everyone is responsible for his own hotel reservations. The Southern Weed Conference should be mentioned in a request for room space, he added. The Chamber of Commerce should be asked for additional information.

Dr. E. G. Rodgers, chairman, local arrangements committee, points out that St. Petersburg is easily reached by automobile, bus, plane or train. In some cases, he said, flight and train schedules terminate in Tampa which is just across the bay from St. Petersburg. Though taxi and limousine service is available, Dr. Rodgers explained, conferees are cautioned to specify that they wish to end their travel in St. Petersburg in making trip plans.

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**1.** A better conditioned product . . .

crumbly, homogeneous, easy-to-handle and free from lumps.

**2.** More efficient conversion . . .

improved wetting brings reactants into more intimate contact, aids in making reaction more effective.

**3.** Lower processing costs . . .

use of 60° Baume acid eliminates dilution step. Less labor is required for maintenance, since mixer and den are cleaner.

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*Reduces lumping and caking*
*Cuts curing time*
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*Reg. U. S. Pat. Off.

*For more information write MONSANTO CHEMICAL COMPANY, Inorganic Chemicals Division, 1700 South Second Street, St. Louis 4, Missouri.*

# Control Officials Meeting Proves

The fine spirit of cooperation which exists between the control officials and the fertilizer industry, and the harmony in which they work together for the good of the farmer, was never better exemplified than on October 15th at the Shoreham Hotel, Washington at the 8th annual convention of the Association of American Control Officials. Of the 146 present, 84 were government and control officials; 62 represented the fertilizer industry. And the full, informative program was run off briskly, but without skimping any point in the vital agenda.

The Association elevated R. W. Ludwick, New Mexico, who had been vice-president, to replace retiring president Henry A. Davis, North Carolina. They moved M. P. Etheredge, Mississippi, from the executive committee to the vice-presidency which, of course, makes him ex-officio an executive committee member. And they re-elected Bruce D. Cloaninger, South Carolina, secretary-treasurer.

New members of the executive committee are J. J. Taylor, Florida and Stacy Randall, New Jersey.

The meeting was preceded by a dinner at which NFA entertained the control officials . . . and concluded by another, by APFC, which followed the adjournment the next evening.

Among the actions taken was the following wording for an added definition N-O-16 in the Official Publication: Urea-formaldehyde fertilizer materials are reaction products of urea and formaldehyde containing at least 35% nitrogen largely in insoluble but slowly available form. The water insoluble nitrogen in these products shall test not less that 40% active by the nitrogen activity index for Urea-formaldehyde compounds as determined by the appropriate. A.O.A.C. method. (Tentative, 1954.)

A. B. Lemmon, California, made the following recommendations:

1. It is recommended that all states follow uniform practice of requiring fertilizer-pesticide mixtures to be labeled fully in accordance with the requirements of both the fertilizer law and the pesticide law.

2. It is recommended that "custom mixtures" or "farmers mixtures" of fertilizers and pesticides be required to be registered, and if the state law does not now require such registration of custom mixtures, study be given to the possibility of amending the law.

3. It is recommended that where fertilizer-pesticide mixtures are to be used for experimental purposes, registration be required under both laws unless they are free materials for which no charge is made.

4. It is recommended that all regulatory officials carry on an aggressive cooperative program with members of the State Experiment Stations and the industry to develop data which will serve as an adequate basis for sale, use, and regulation of fertilizer pesticide mixtures.

In his president's report, Henry Davis stressed the coordination of control and production in the industry in his welcome to the guests. "Especially do we welcome repre-

When NFA entertained the Control Officials at dinner—these were at the head table: J. W. Turrentine, President Emeritus, American Potash Institute; O. V. Wells, Administrator, Agr'l Marketing Service, USDA; H. B. Mann, President, American Potash Institute; J. F. Fudge, State Chemist, Texas Agr'l Experiment Station; Paul T. Truitt, President, American Plant Food Council; Parks A. Yeats, Director, Seed, Feed & Fertilizer Division, State Dept. of Agriculture, Oklahoma City; R. W. Ludwick, Deputy in Charge, Feed & Fertilizer Control, State of New Mexico; Russell Coleman, Pres., The Nat'l Fertilizer Association; Henry A. Davis, Asst. Chemist, Dept. Agr. & Bio. Chem., Agricultural Experiment Station, Durham N. H.; Rodney C. Berry, Director, Division of Chemistry, State of Virginia; L. B. Taylor, Commodity Stabilization Service, USDA; B. D. Cloaninger, Head, Dept. of Fertilizer Inspection and Analysis, Clemson, S. C.; W. R. Allstetter, Vice-Pres., The Nat'l Fertilizer Association; Sherman E. Johnson, Director, Farm & Land Management Research Branch, Agricultural Research Service, USDA; H. A. Huston, Sole survivor of original members of Association of Official Agricultural Chemists formed in 1884.

## KEY TO PICTURES

1. Executive Committee: Front row: M. P. Etheridge, State Chemist, State College, Miss., R. W. Ludwick, Deputy in Charge Feed & Fert. Control, State College, New Mexico, Bruce Cloaninger, Head Dept. of Fert. Inspection and Analysis, also Sec.-Treas. Control Officials Clemson, S. C., Back row: Henry A. Davis (retiring president) Associate Chemist, New Hampshire Experiment Station, Durham, N. H., Forest Quackenbush, State Chemist, Lafayette, Ind., J. J. Taylor, State Chemist, Tallahassee, Fla., Stacy Randle, State Chemist, New Brunswick, New Jersey, J. D. Patterson, Chief Chemist, Salem, Oregon. 2. Rodney C. Berry, Director Div. Chemistry and State Chemist, Va. Dept. Agric., Richmond, Dr. W .L. Nelson, American Potash Inst. Lafayette, Ind., Walter Scholl, USDA, Beltsville. 3. Tom Law, Law & Co., and Law-Barrow-Agee Lab., Atlanta, Henry A. Davis, retiring president Fertilizer Control Officials, Durham, N. H. 4. Dr. Russell Coleman, president, National Fertilizer Association, Washington. Mrs. Eugene Holeman, Dr. H. B. Mann, Amer. Potash Institute, Washington, Eugene Holeman. 5. Past president Parks A. Yeats, presents plaque to Henry A. Davis, retiring president, as incoming president, R. W. Ludwick looks on. 6. R. W. Ludwick, State College, N. M., elected president for Control Officials for next term. 7. Jess Garman and Paul Truitt, both with American Plant Food Council, Washington, John A. Hennesy, Supervisor, Feed & Fert. Control, Denver, Colo. 8. M. H. Geagley, Dr. K. D. Jacobs, USDA, Beltsville. 9. George H. Laramie, Fert. Con. Supervisor, Concord, N. H., Frank Fudge, State Chemist, College Station, Texas 10. Bruce Cloaninger, Head Fert. Insp. and Analysis, Clemson, S. C., John D. Conner, Sellers & Conner, Washington. 11. Felton McIntyre, Asst. Chemist, Atlanta, Ga., Bill Schnuter, State Chemist Laramie, Wyoming. 12. Dr. Arthur Smith, Olin Mathieson, Baltimore, Philip McG Shuey, Shuey & Co., Savannah, D. T. Cook, Olin Mathieson, Pasadena, Tex.

# Fine Spirit of Inaustry Cooperation

sentatives of the fertilizer industry" he said. "It is the state legislative bodies which make the laws and regulations. It is the duty of the control officials to see that the provisions of these laws are carried out, but a very vital and essential role to be maintained in the cordial relationships and mutual respect between the manufacturer and the control officials.

"The control official is in a key spot to advise and aid . . . another duty is to see that outmoded, useless or ineffective laws are removed."

As a matter of learning the attitude of the fertilizer industry toward the control officials, Mr. Davis wrote a number, and—without revealing any names—cited these comments which were contained in the answers he received:

"All replies expressed a high regard for the local control official and mentioned the general helpfulness of State Agencies. This is certainly an attitude that we as control officials, should strive to cultivate and hold. In such a situation of good feeling, the big problems become small ones and the small problems cease to exist.

"Many commented that manufacturers should receive analytical results as soon as possible. While routine in some states, more prompt reporting would be helpful.

"Some believe that larger samples should go to the laboratory to avoid an unbalanced sample—a riffle or some such device should be used for

**STAFF PICTURES OF CONTROL MEET**

dividing the sample. This would increase the accuracy of sampling. Avoid field quartering if possible, send the whole sample to the laboratory.

"The control office seems to be doing as good a job as the law allows.

"Increase the number of inspectors to better cover the field.

"Problem of bulk deliveries—how best to check weight and sample the lot.

"The question of whether to test products each year that have consistently met guarantees when there were still materials on sale and not checked, was raised.

"Should check all fertilizers appearing on the market.

"A mimeographed summary of sales would be helpful.

"Spot checks by sending part of the official sample to other control or private laboratories.

"If water soluble magnesium is guaranteed, it should be determined and reported.

"All analyses should be published.

"In regard to tolerance, a percentage system would be better than a straight allowance.

"Uniform guarantee of analysis in various states. A more uniform system of publishing results. An average commercial value of plant food units would be helpful.

"A uniform system of reporting minor elements should be adopted, preferably as the elements. Would like to see the change from $P_2O_5$ and $K_2O$ to P and K made.

"Get the idea across to the fieldmen that the people in the fertilizer industry are in general an honest group interested in giving the farmer what he buys.

"While some state chemists take the attitude that they are policemen and will not deviate from a strict interpretation of this function, others are more liberal and have broadened the work to include data for the further help of both the farmer and manufacturer.

"I believe these comments are enough to indicate how many manufacturers are thinking in regard to our work. In considering these, I fail to find one that in my short memory has not received careful consideration by our association and is continuing to receive our attention.

The presidents of the two national fertilizer associations were on the program, immediately following Mr. Davis. Russell Coleman, NFA, presented a series of slides showing the production and consumption of fertilizer materials as related to usage by regions of the US, and discussed the relationships between N, P and K.

Paul Truitt, APFC, talked on the consequences to follow the rising demand for food all over the world which would put new and higher pressures on the land to meet the need. With the population increasing at a rate that he called "a population explosion" by the turn of the century we will have 200 to 205 million mouths to feed. Within a hundred years the population will have doubled, he said the scientists predict.

Canada is likely to double its population in 10 years. Mexican birthrate is the third highest in the world. 9 of the first 12 high birthrate countries are our neighbors in the Western hemisphere.

Speaking on public relations, Rodney C. Berry, Virginia, emphasized the fact that "every control official in this room will agree that his office would operate more efficiently and at less cost if he had the confidence and trust of the general public and the cooperation of the manufacturers in carrying out the duties of his office." Failure to achieve this relationship, he said, was a failure to develop good public relations.

Polite phone contacts, polite contacts in the field, meeting with farm organizations, civic clubs, garden clubs, were ways suggested to improve public relations.

A pungent quote from Mr. Berry's talk: "If your thinking is right on the inside, it helps tremendously to make things go right on the outside. The public is composed of people, and it is a recognized fact that if you like people, people will learn to like you. And if you don't like people, you had better get someone else to handle your public relations job."

Walter Scholl and Hilda M. Wallace, USDA, discussed non-farm consumption of fertilizers. Dr. W. L. Nelson, North Carolina, spoke on fertilizer placement. NAC's attorney, John D. Conner, urged cooperation among control officials to achieve greater uniformity of regulatory requirements, and a moderate approach to the warning and caution statements on the use of toxic pesticides in combination with fertilizers.

This concluded the morning session. The afternoon was devoted to reports of investigators on a wide variety of subjects.

The dinner which followed adjournment, like the dinner the previous evening, was followed by a meeting, of the States Relations Committee, an informal discussion along panel lines, with comments from the floor.

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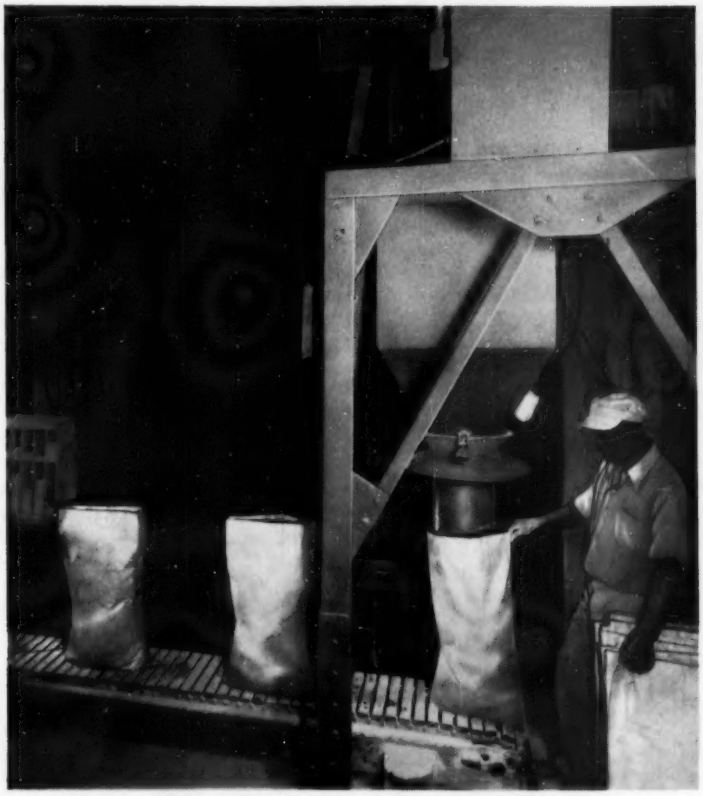
## Phillips Buys Curry Chemical

Curry Chemical Company, with 14 affiliates engaged in the wholesale and retail distribution of agricultural ammonia, mixed fertilizers of their own manufacture, and separate fertilizer materials, has been acquired by Phillips Petroleum. They will continue operations as in the past, with present personnel and offices at Scottsbluff, Nebraska. W. A. Curry Jr., however, will resign as head of the companies, to devote full time to other interests.

The acquisition marks no change in the Phillips fertilizer marketing policies, of selling its products through independently operated organizations.

The Curry properties include a mixing plant at Scottsbluff, and about 100 ammonia distributing plants, mostly operated by local dealers in Nebraska, Wyoming, Montana, South Dakota and Kansas.

# How Union Bag's I & C BAGGER is reducing Multiwall Packaging Costs



In its first year of field use, the new I & C Bagger has proved conclusively that it substantially reduces packaging labor costs, increases production, and is instrumental in bringing about important economies in the cost of the Multiwall Bags themselves.

User's own records have verified that Union's I & C Bagger is the most efficient and practical unit yet introduced for accurate, high speed weighing and packing of free-flowing, non-bridging materials. It operates on a completely automatic filling and weighing cycle, processes 400 to 500 tons in an eight-hour day, maintains a packing-rate well ahead of any other open-mouthed packer.

Many plants which originally made pilot installations of I & C Baggers, already have ordered additional units. Demand for the new equipment has been so great that a complete new manufacturing plant has been built.

The I & C Bagger is sold exclusively by Union Bag. It is installed and serviced by trained Union packaging engineers. Crews are located to render immediate and efficient service.

## CASE HISTORIES SHOW WHY MANY USERS ARE ORDERING ADDITIONAL EQUIPMENT

**Approximately 40% of the packing plants who have installed one machine have reordered one or more I & C Baggers for either the same plant or other branches.**

**SAVES $50 A DAY—WINS NEW CUSTOMERS**

Installation of an I & C Bagger enabled a small southern fertilizer plant to save $50 a day by reducing man power and increasing production.

**PLANT ORDERS 11 MORE**

A large plant food company which had installed an I & C Bagger was so pleased with the test that the company has installed ten additional units throughout its various branches, and recently has ordered two more.

**CONVERT EIGHT ADDITIONAL PLANTS**

A company which last fall converted one of its plants to a sewn open mouth operation, using an I & C Bagger for its weighing and filling, has since converted eight of their other plants. This company has saved $7.00 per thousand in its bag cost alone. It has also claimed additional business by being able to move its trucks from the loading dock with more speed than ever before.

**TRACE DIRECT PROFITS TO I & C BAGGER**

A Florida branch of a national chemical company had consistently been running in the red. With the adding of an I & C Bagger this branch went into black for the first time.

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# I&C Bagger

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# SOME *Principles* OF *Placement*

W. L. Nelson
American Potash Institute
Lafayette, Ind.

We have recognized for many years that an important factor in the efficient use of fertilizers has to do with the position of the fertilizer in respect to the plant. Actually selection of the proper point to apply the fertilizer ranks in importance with choosing the correct amounts of plant nutrients. Fertilizer placement is significant from at least three aspects: (a) location at a point where the plant can utilize the nutrients to good advantage. (b) location so as to avoid injurious effects to the germinating seed or to the plants, and (c) convenience to the farmer. An additional aspect is fertilization of the rotation which in a sense is placement.

It might be well to comment here that for profitable production, instead of determining how little fertilizer the farmer can get along with, the important fact is to determine how much can be profitably used.

Recommendations as to placement for various crops are well summarized in a pamphlet "Methods of applying fertilizer" by the National Joint Committee on Fertilizer Application and published by the National Fertilizer Association in 1948 (3).

The primary objective of this discussion is to review principles involved in placement. In evaluating proper placement of fertilizer the rooting pattern of the crop, the soil, the climate and the nutrients themselves must be considered.

### Rooting Pattern

Crop plants vary greatly in top growth, both in appearance and kind, not only from one species to another, but also within a given species. One might expect that root systems would likewise vary greatly in nature and in rapidity and extent of development. Root systems are sometimes classified as fibrous or tap. The fact that crops may be annuals, biennials or perennials is also important.

Since the roots are the main organs which take up the plant nutrients a thorough understanding of the characteristic rooting habits and relative activity should be helpful in development of fertilization practices.

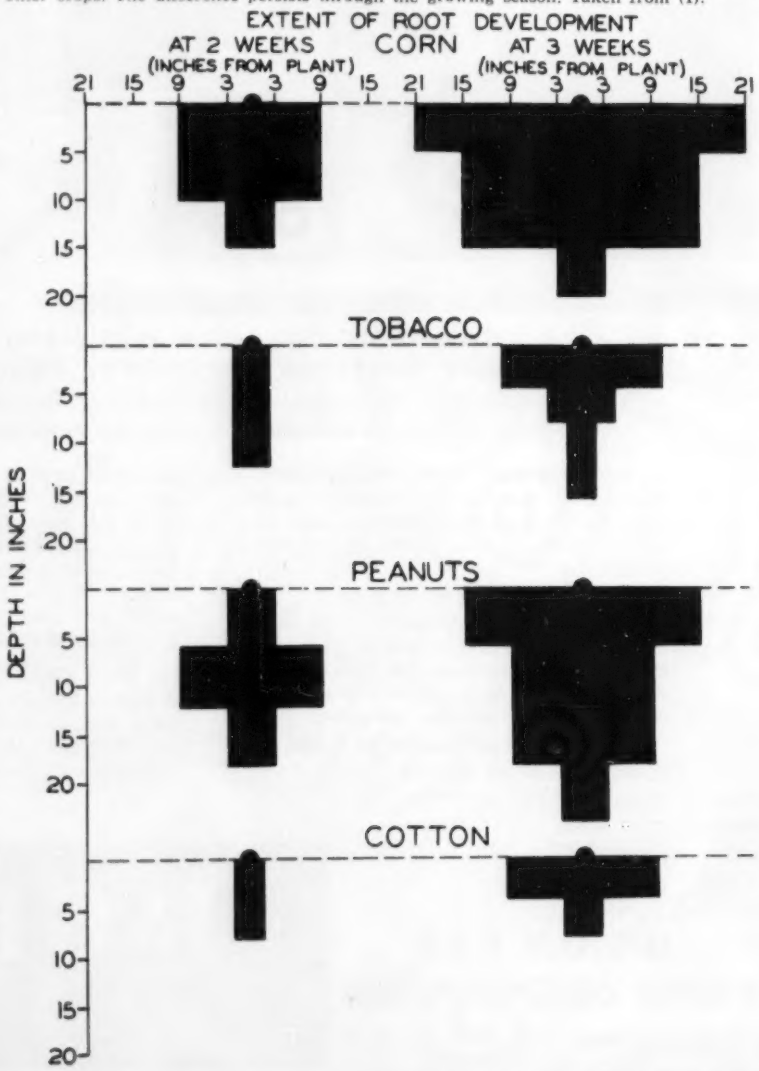
The extent of the rooting system may affect the importance of building up the fertility level of the soil as compared to large applications of fertilizer in the row. This point is illustrated for phosphorus with corn and potatoes (Table 1) (2). The soil level had little effect on the amount of fertilizer phosphorus used but had considerable effect on the total phosphorus in the corn plants. With corn, high amounts of phosphorus in the row on the low Phosphorus soil did not increase the total amount of phosphorus in the plant to that obtained in plants grown on the high phosphorus soil. With white potatoes, a crop with a limited root system, fertilizer was effective in increasing the total $P^2O^5$ in the plant even on the high phosphorus soil.

Much further information is needed in respect to the rooting habits of various crops but this brief discussion should serve to emphasize the differences among crops and focuses attention on possible difference in fertilizer placement requirements.

### Soil Characteristics

There are several soil characteristics that influence where fertilizer should be placed for maximum efficiency.

Figure 1. The root system of corn is much more extensive than that of cotton or other crops. The difference persists through the growing season. Taken from (1).




Extracts from papers presented at Control Officials Meeting.

**Fixation of nutrients:** Certain of the colloidal fractions fix phosphate while potash may be fixed by certain of the primary minerals, mica in particular. Soils vary greatly in capacity for fixation of phosphorus and potassium. Nitrogen may be temporarily rendered unavailable if the soil contains high amounts of organic residues with a wide carbon-nitrogen ratio.

**Water movement:** It should be kept in mind that only water above field capacity moves. The soil water movement is largely in a vertical direction and with a given set of weather conditions extent of movement up and down will be influenced by the soil texture.

**Exchange capacity:** Soils with a high exchange capacity adsorb a higher proportion of the cations such as ammonium or potassium against movement. The ion displaced from the exchange complex may also have an injurious effect but little information is available on this point.

### Climatic Characteristics

**Rainfall:** High amounts of rainfall particularly on a sandy soil may leach out soluble nutrients such as nitrates. Low rainfall following surface application of soluble salts slows down movement into the root zone. A light shower followed by a period of dry weather may concentrate the soluble salts in the vicinity of the young roots.

**Temperature:** Ammoniacal nitrogen is absorbed on the colloidal complex and remains there unless used directly by plants or until nitrified. Above 50°-60° conversion to the nitrate takes place fairly rapidly.

Another factor related to temperature is that under cool temperatures decomposition of the organic matter maybe slow with low release of nitrogen and necessitating some starter nitrogen. Likewise under cool temperatures absorption of phosphorus by plants tends to be low and starter phosphate fertilizer is helpful.

### Nutrient Characteristics

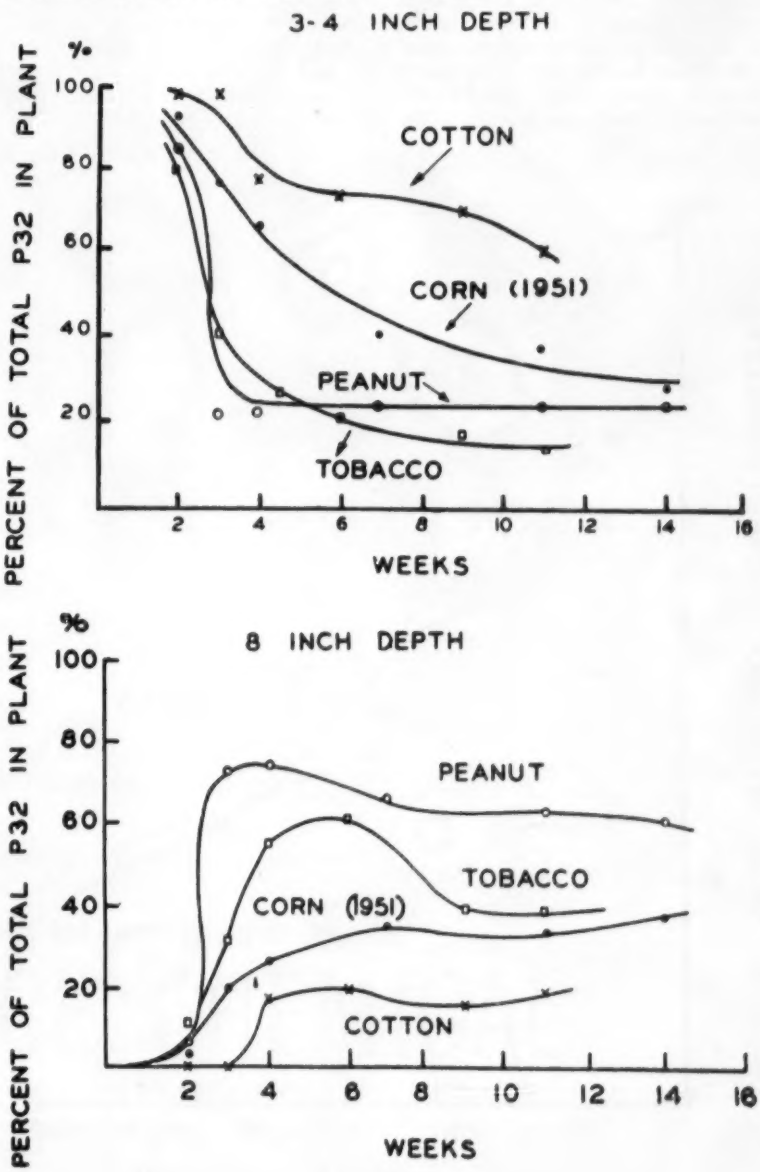
Soluble salts tend to move from the zone of placement, the direction largely depending upon the direction of the water movement. Hence, in view of possible movement, the concentration of fertilizer directly under, directly above, closely around, or in the furrow with the seed is generally hazardous.

**Nitrogen:** Almost all of the nitro-

**Table 1. Effect of soil phosphorus level and rate of application on utilization of fertilizer phosphorus and on total phosphorus. Bladen silt loam, North Carolina (2).**

| | | 25 lbs. $P_2O_5$ applied | | 100 lbs. $P_2O_5$ applied | |
|---|---|---|---|---|---|
| | $P_2O_5$ in soil lbs. | $P_2O_5$ in plant from fertilizer lbs. | Total $P_2O_5$ in plant lbs. | $P_2O_5$ in plant from fertilizer lbs. | Total $P_2O_5$ in plant lbs. |
| Corn | 65 | 3.8 | 23.0 | 10.1 | 30.0 |
| | 151 | 3.2 | 40.1 | 9.0 | 40.0 |
| Potatoes | 66 | 6.8 | 16.1 | 12.6 | 20.0 |
| | 240 | 4.6 | 18.0 | 14.5 | 24.0 |

Figure 2. Cotton roots are most active in the three to four inch depth while peanuts and tobacco are more active in the eight inch depth (1).



gen materials are soluble. Nitrates move readily because they do not attach to soil particles. Ammoniacal nitrogen is a cation and does not itself move readily. Because of this tendency to resist leaching applications of nitrogen at or before planting are largely ammoniacal, or materials such as urea which pass thorugh the ammoniacal form in transformation.

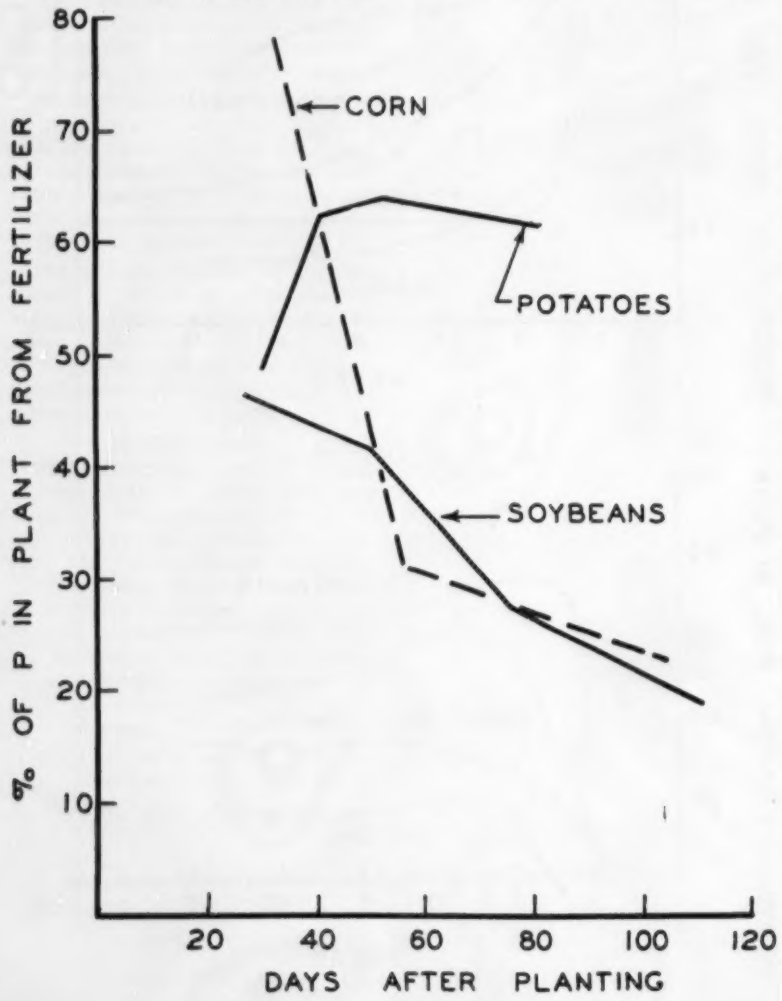
Time of application becomes important because of possible losses of nitrogen.

Place of application from the standpoint of efficiency is not too important other than to have a small amount of nitrogen in the row to start the plant. As a general rule it is difficult to supply all the nitrogen in the row for a crop because of possible injury. With crops drilled or spaced closely the balance of the nitrogen applied broadcast is utilized efficiently.

**Phosphate:** Phosphates, even water soluble forms, move very slowly from the point of placement as the phosphate ion either from the monocalcium or the ammonium salts is readily fixed by certain of the colloidal fractions of the soil. Hence, for all practical purposes, the phosphates are not of importance in injury from salt movement.

While the most efficient use of limited quantities of phosphate at planting and the highest return from each dollar spent on phosphate will generally be obtained by band or localized application, if one considers the profit per acre and has capital, a different placement might be used. On soils low in phosphorus or other nutrients it is usually difficult to produce top yields by row applications. In such instances particularly for high acre value crops it is often desirable to increase the phosphorus level in the soil to medium by broadcast applications. To reduce fixation, acids soils should be limed to above pH 6.0 if this practice is followed.

Figure 3. Potatoes have a more limited root system than corn or soybeans and depend more on the fertilizer phosphorus (2).




**Potash:** Potash salts are soluble but are less mobile than the nitrate salts. Since the potassium ion is positively charged it tends to attach to the colloidal complex. As was the case with nitrogen and phosphorus there are several points to be considered in placement, however. Fixation of potassium occurs on some soils, particularly those with a high mica content but unless the soil is extremely low in potassium the fixation is reversible. With the possible exception of very sandy soils losses of potassium by leaching are not appreciable and liming to above pH 6.0 is helpful in reducing such losses. In addition, potassium is not needed in any great quantity by the young seedlings.

These points serve to indicate the flexibility in placement of potash, the main point being to place it so as to avoid injury to the young plants. Broadcast applications are generally effective (Figure 5).

**Salt index of mixed fertilizer:** It would be well to emphasize that fertilizer salts vary greatly in effect on the concentration of the soil solution. Fertilizers of the same grade may also vary widely in salt index depending upon the materials from which they are formulated. Higher analysis fertilizers will generally have a lower salt index per unit of plant nutrients than water-soluble low analysis fertilizers. This is related to the fact that higher analysis fertilizers are usually made up of higher analysis materials.

Particularly in situations where band placement equipment is not available, it would appear that more of the nitrogen and potash might be broadcast and plowed down before planting or sidedressed after the crop was up. In this situation a high phosphate but low nitrogen and

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Corn is only one example. Actually, there will be many applications for this nitrogen: as fertilizer for other feed and fiber crops; as a protein source for feed supplements; for industrial uses such as the manufacture of plastics, synthetic fibers, pharmaceuticals, and in petroleum refining.

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potash fertilizer might be used as a starter fertilizer.

### Fertilization of the Rotation

**Fertilizing the soil:** Large quantities of phosphate or potash may be applied broadcast at certain intervals in a rotation to build or to maintain fertility.

**Fertilization of critical crops:** In some cropping systems there are crops which may be more critical in respect to a particular nutrient or nutrients. Soil fertility level of course must be considered. If the soil was well supplied with nutrients, fertilizer on the critical crop should be adequate.

**High acre value crops:** With such crops as vegetables, fruits, and tobacco the acre value of the produce is quite high. In such situations the cost of the fertilizer is a relatively small item and considerably more fertilizer than adequate may be applied as an insurance measure.

**Cover crops:** Where intensive vegetable growing is practiced, green manure small grains or small grain plus legumes are often grown. In some areas intensive fertilization of the green manure crop is practiced but only to grow high quantities of organic matter but also be provide a source of nutrients for the next crop.

A green manure crop of sweet clover, or other legumes, might of course be used in the same manner.

### Summary

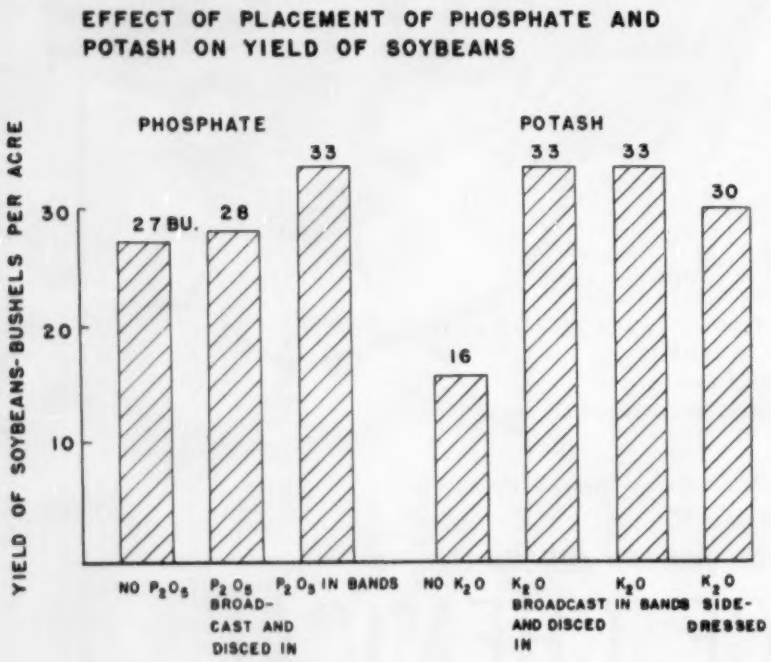
With the higher quantities of plant nutrients being used on row crops at planting greater care must be taken in placement of the fertilizer in respect to the seed or young plant.

Plants vary greatly in rooting patterns and need for fertilizer nutrients and full consideration must be given to these factors.

In general, localized applications of phosphate are most effective and are important in starting plants off. The placement of the nitrogen and potash salts is a different matter, however, because of their solubility and potential movement. Except for small amounts of nitrogen and potash in the row at planting more of the nitrogen and potash might be broadcast or sidedressed.

With higher amounts of fertilizer in the rotation and as soil levels are increased the point of placement of phosphorus and potash becomes of less importance.

Figure 5. Broadcast application of phosphate is less effective than band application. Potash, however, was just as effective broadcast at the rate applied. (Bladen silt loam medium in phosphorus and potassium, North Carolina).

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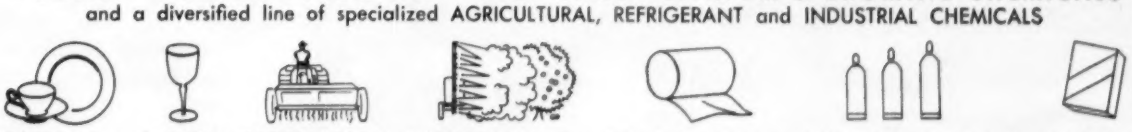

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# LION OIL PLANT DEDICATED

The Barton Plant, Lion Oil Company's new petrochemical installation at Luling, La., was formally dedicated October 25 in ceremonies held at the plant site.

The plant is located on a 1,400 acre plot on the west bank of the Mississippi River, 14 miles upstream from New Orleans. The Barton Plant manufactures nitrogenous chemicals for agriculture and industry, using natural gas, air and water as raw materials. It has capacity for the daily production of approximately 300 tons of anhydrous ammonia (about 82% nitrogen), a large portion of which is processed into pelleted ammonium nitrate for use as fertilizer. This material is also used by fertilizer blenders as the nitrogen content in mixed fertilizers. Waste carbon dioxide from the ammonia manufacturing process is utilized at the plant in the manufacture of about 42 tons per day of solid (dry ice) and liquid carbon dioxide.

Manufacturing operations at The Barton Plant were begun late in May of this year. About 18 months were required for construction of the installation. Chemical Construction Corp. of New York was the engineer-architect and The Lummus Co. was the prime construction contractor.

Congressman Hale Boggs was master of ceremonies at the dedication. Governor Robert F. Kennon (La.) and Sheriff Leon Vial of St. Charles Parish (county) welcomed Lion Oil Company and its guests to Louisiana and to the Parish in which the plant is located. Approximately 1,500 people attended the ceremonies.

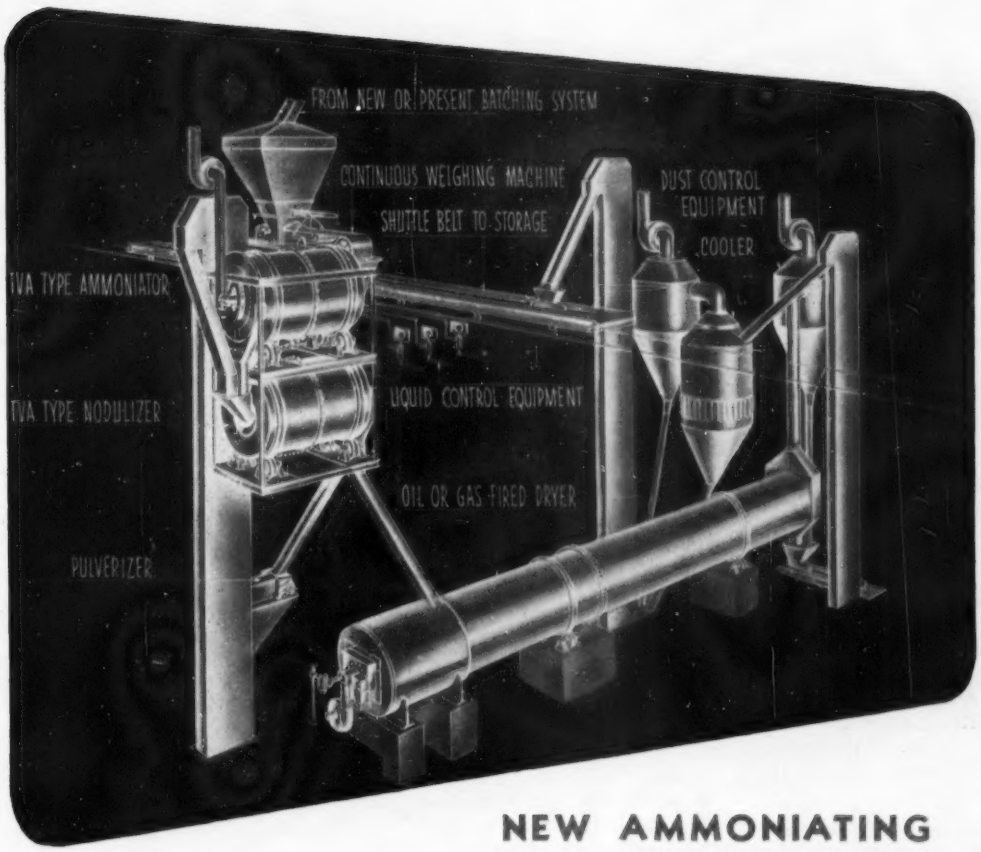
Lion's board chairman T. H. Barton, for whom the directors of the company named the plant, made the principal address. Labeling the occasion as an important milestone in the growth of Lion Oil Company, Barton stated that the plant represented the greatest single manufacturing expansion in the history of the company. "We have here a tract of 1,400 acres, only a small part of which is occupied by the present manufacturing units. The purchase of such a large area of land is an indication of our faith in the future. It is highly possible that this new plant will develop along additional lines in the days to come.

"The guiding philosophy of Lion Oil Company has been directed toward making an increasing contribution to the economic well-being of our nation, the Southland, our customers, our shareowners, and our Lion people. We have studied economic patterns with the end in mind to integrate and diversify. In this way we have had steady growth and have built a sound foundation for continued growth in the future. With completion of The Barton Plant, Lion's investment is approximately equally divided between petroleum and chemicals. We find that these interests supplement each other very effectively and provide a sound basis for continued growth."

After calling attention to the nation's growing population and the necessity for raising additional food on about the same amount of land, he emphasized the importance of commercial fertilizers in the future. "It is to the production of more fertilizer materials to meet this growing trend that this plant is dedicated today," Barton said, "Of course, some of our ammonia output is now being sold for industrial use, and plans are already in the formative stage to increase our activity in the industrial field."

The board chairman stated that the plant is about to be enlarged by the construction of a unit to manufacture nitrogen fertilizer solutions, which serve as the nitrogen content in the production of mixed fertilizers.

Barton welcomed new employees at The Barton Plant and concluded his remarks by saying to them, "We are on the threshold of a promising future. In oil and petrochemicals alike, we are making significant contributions to the economic well-being of agriculture and industry.




## NEW AMMONIATING AND GRANULATING PROCESS

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## ALABAMA

**Ketona Chemical,** Ketona, jointly owned by **Alabama By-Products** and **Hercules Powder** has awarded to **Fluor** the contract for the engineering and construction of its anhydrous ammonia plant, which is to have a capacity of 45,000 annual tons, and to be in operation late next year. It will be the first American synthetic ammonia plant to be based entirely on coke oven gas. Hercules will direct the engineering for all auxiliary facilities, which are to be contracted for separately by Ketona.

## ARIZONA

**Arizona Fertilizer,** Yuma, and **Shell Oil**—right next door—had burglaries the same night a while ago. They got away with a number of checks, and a little cash.

## CALIFORNIA

**Downey Fertilizer,** Downey, had fire damage estimated at $70,000 by **Sam Mooschekian,** owner, in their liquid fertilizer and grain storage area. The chemical fertilizer section was a total loss, except for a tank containing several hundred gallons of sulphuric acid.

## COLORADO

**Farm Chemical Co.,** Longmont, has been established to mix, base and bag dry chemical fertilizers and to handle various types of liquid fertilizers. **Leon E. Williams** and **George S. Fleming** are interested in the operation, and the latter will become general manager.

## FLORIDA

**Gulf Chemical,** Pensacola, is contemplating the building of a plant in the petrochemical field which would be shared by three concerns, if plans go through as now laid out. **Electric Bond & Share** 40%; **United Gas** 40% **National Research** 20% is the division of the projected $23,000,000 plant which would have a capacity of 200 daily tons of anhydrous, in addition to other products.

* * *

**Hector Supply Co.,** Miami, has established a $50,000 mixing plant. **Carl Reger** is the owner; **W. D. DeHass** is plant manager.

* * *

**Atlantic Bag Co. Inc.,** Hastings, has formally opened its plant, reported here some time back as one of the largest bag manufacturing plants in the Southeast. **Roger Pounds** is president; **J. A. Baggs,** vice-president; **E. O. Johnson,** plant superintendent.

## GEORGIA

**Gilman Paper,** New York, is operating its new bleach plant at St. Marys, which for the first time gives them production of their own bleached pulp and paper. It is considered one of the most advanced sulphate pulp bleach plants in the field.

## IDAHO

**Jefferson Lake Sulphur** has announced its intention to build a sulphuric acid and a triple superphosphate plant in Southeastern Idaho. The directors met recently in Boise to consider the project and the announcement was later made by **Eugene H. Walet, Jr.** company president. The units will cost more than $3,000,000, according to vice-president **George F. Wilkins** and will have a capacity of some 80,000 annual tons.

## INDIANA

**Standard Oil** and **Sinclair Refining** are to build at Hammond a plant to produce 300 daily tons of anhydrous ammonia. It will be near both refineries, which will feed by-product hydrogen and other gases into the ammonia plant by pipe-line.

## IOWA

**Simonsen Mill Rendering** will build at Quimby a $175,000 plant to produce high analysis, granulated fertilizers. Target date is next August.

* * *

**KeWash Fertilizer** has completed a soil-testing laboratory at Keota, and installed anhydrous ammonia tanks at Crawfordsville, Richland and Riverside. **Howard Greiner** is president.

## KANSAS

**Mo-Kan Fertilizer and Gas,** Wathena, has been chartered with $50,000 authorized capitalization. **R. F. Glick** is resident agent.

## KENTUCKY

**Knoxville Fertilizer,** Louisville, sponsored one of the winners in the Kentucky Chamber of Commerce annual Community Development Contest.

## LOUISIANA

**Port of Lake Charles** is making excellent progress on its phosphate rock grinding plant, reported here some months ago, according to word from Port Director **Ernest J. Christman.** He writes that work is progressing fast on all of the installations—wharf, conveyor system and other items. The silos are just about complete. One of the grinding mills has arrived, been unloaded—and will be soon in company of the second, which is on the way. "While there is considerable work to be done, it is pretty well agreed that this plant will be completed by December 15."

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Check all of these features and see why this SHOVELOADER compares with others costing $350 to $400 more. The lift height is a tall seven feet with lifting capacity a husky 1500 pounds... 500 pounds more than most competitive units. The loader arms are located out in front of the operator—not around him—to keep him safe from injury and give him clear-view visibility at all times. The bucket can be cradled low too, giving him unobstructed forward visibility and making it unnecessary to drive backward as with other units. Maximum travel speed is 14 MPH. Plenty of bucket tilt back at ground level makes it easy to get a full bucket every time from stockpiles... letting you reduce handling costs by moving more bulk in a shorter time.

Attachments let you do more types of work too. Lift forks let you handle palletized loads, the crane hook gives you a portable hoist, and special buckets are available for handling dense materials. Exhaust-destroying catalytic equipment is also available for indoor use where necessary.

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*Mobile, Alabama Plant*

*Crossett Paper Mills*
*Crossett, Arkansas Plant*

*Camp Manufacturing Co.*
*Franklin, Virginia Plant*

*West Virginia Pulp & Paper Co.*
*Charleston, S. Carolina Plant*

John Deere's new nitrogen plant, located at Pryor, Oklahoma, started producing ammonia during the latter part of August. Officials of the parent Company and its new Grand River Chemical Division were on hand to witness the filling of some of the first tank cars.

The new plant has a rated daily capacity of 180 tons of anhydrous ammonia, most of which will be used in the production of urea; the remainder going for direct application, manufacture of mixed fertilizers and industrial uses.

Observing the new operations are from right to left: W. W. Yeandle, Works Manager, Chemical Division; W. A. Hewitt, Executive Vice President, Deere & Co.; L. A. Rowland, Vice President, Deere & Co. and General Manager, Chemical Division; M. A. Fraher Vice President, Deere & Co; John R. Taylor, Jr., Sales Manager, Chemical Division; Paul R. Soule, Jr., Assistant Sales Manager, Chemical Division; C. L. Oheim, Vice President, Deere & Co.; and R. B. Ady Chief Engineer, Chemical Division.

## MAINE

**Northern Chemical** is expected by the community of Searsport soon to get under way with the $8,000,000 ammonia plant which has been in the planning stage for some time. Officials, while saying that the engineering work has been completed, will not announce a date for the ground-breaking as yet.

## MINNESOTA

**Minnesota Liquid Fertilizer,** Willmar, has recently been established. It is owned and operated by **C. H. Litch,** and is affiliated with the Minnesota Liquid Fertilizer Company of Minneapolis, which has 21 bulk plants in the Southern part of the State.

## MISSISSIPPI

**Nitrogen, Inc.** has been incorporated at Clarksdale, and will erect bulk storage tanks for liquid fertilizer distribution. Capital stock is $5000.

## MISSOURI

**Mississippi River Fuel,** St. Louis, has chosen **Bradley and Baker** to handle sales of its ammonium nitrate, anhydrous ammonia and nitrate solution, according to word from **John L. Sanders** who was announced in this magazine last month as the salesmanager of its newly formed chemical division, which is to be known as the **Mississippi River Chemical Company.** The plant, being built as our readers know, by **Fluor** is on the River, south of St. Louis, and is expected to be in production during the fall of 1955.

* * *

**Carman Chemical's** plant at St. Louis has been bought by **Thompson-Hayward Chemical,** Kansas City, and it will be consolidated with the T-H plant there as the Carman Division. Carman personnel will be retained and, after termination of the lease on the present building will move to the T-H plant.

## NEW MEXICO

**Freeport Sulphur** and **Pittsburgh Consolidated Coal** are negotiating a joint $16,000,000 potash project near Carlsbad. Plans are not final, but the operation contemplated would take two years in the building and produce 240,000 annual tons of potassium oxide and commercial potash.

Freeport has had a crew, under the leadership of **Ray Jenkins,** working in the area for three years, proving its leases, which straddle the line dividing Eddy and Lea counties.

* * *

**National Farmers Union,** Denver, has announced a $10,000,000 potash plant near Carlsbad, which will be three years in building, and will represent over the next 8 years an investment of some $25,000,000, according to general manager **C. E. Huff.**

NFU has entered into a contract with **Kerr-McGee,** pioneer in uranium mining for the development of NFU's New Mexico holdings which are said to represent a value of more than $100,000,000, based on independent appraisals of the 13,000 acres on which they have leaseholds. These are in the Eddy and Lea counties area. Within a short time Kermac will set up a pilot shaft near Artesia, according to **Dean A. McGee,** president.

## PENNSYLVANIA

**Sun Oil Co.** will enter the petrochemicals field with the building of a $9,000,000 anhydrous ammonia plant at its Marcus Hook refinery, according to its president, **Robert G. Dunlop.** The plant is slated to produce 300 daily tons. The project was announced at a dinner at which more than 1000 veteran Sun employees were present. **Catalytic Construction Co.** has been awarded contract for design and construction of the new facility, it was announced by Catalytic's president, **T. Elwood Webster,** who said it would be ready for production by next November.

## SOUTH CAROLINA

**Virginia-Carolina** has bought from the US the Daniel Jenkins Homes in Charleston, a low-cost housing project, on a tract originally leased by the Government from V-C.

## TEXAS

**Red Star Fertilizer** has completed a $30,000 addition to its plant at Sulphur Springs.

* * *

**Hi-Yield Fertilizer** has completed

a six-month construction program at Bonham, with the completion of a new plant to produce pelletized fertilizer. Included is an automatic bagging unit. The new structure is 70 feet tall, and will double Hi-Yield's manufacturing and bagging capacity at Bonham.

## CANADA

**Consolidated Mining & Smelting** is for the first time in its history delivering ammonium nitrate solution. Their fertilizer sales now represent about half their gross operating income. This year their business is expected to total 700,000 tons, about a 15% increase. A further increase is expected next year when their Calgary expansion comes into the market.

## ENGLAND

**Borax Consolidated Ltd.** about which rumors have been flying, is definitely the British concern in which a US group is interested in acquiring control. The British concern owns mines in California, operates plants in the US, Britain, France Turkey, Austria and South America, and through its American branch has considerable holdings in **United States Potash Company.** The interested US group has not been named.

## INDIA

**Sindri Fertilizer Factory** has picked up production speed, by several thousands of tons in the month of September, and October figures should be even higher. The progress there has inspired an extensive seven year program which could lead to at least three more fertilizer plants in India the size of Sindri, the first of which will be located in the Bhakra-Nagal area. Studies are being made at Agra in the north and in the south at Hyderabad and the South Arcot district of Madras State.

A council is being formed to handle this development, which will include besides a chairman and technical members, **Dr. A. Nagaraja Rao** of the Ministry of Commerce and Industry, **Dr. Parekh** of National Rayons, and a technical officer from Sindri.

The President has appointed **V. Nilakantan** as managing director of Sindri.

## ISRAEL

**Mahkteshim Chemical Works** is under way with a program which represents an investment of more than IL.3,000,000 at Beersheba to produce pesticides. The concern is now producing the basic chlorine, and three separate plants have been built to manufacture insecticides, fungicides and herbicides.

## NICARAGUA

**Industria Quimic-Agricolas,** Managua, went into production in October. This, the largest insecticide formulating plant in Central America was engineered by **Diamond Alkali's** inter-American corporation. It will produce more than a million monthly pounds of finished product on an 8-hour day basis . . . which is

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## NORWAY

**Norsk Hydro,** Glomfjord, will be ready by next summer to turn out 100,000 annual tons of complete fertilizer and 35,000 annual tons of nitrate of lime. The plant is estimated around $8,000,000.

## PERSIA

**Montecatini** has arranged to supply a DDT plant worth more than $13,000,000. Persia will pay for it via shipments of crude oil.

## PERU

**Fluor Peruana S. A.** will build a sulphur refining plant in the Department of Tacna. Fluor Peruana is a wholly owned subsidiary of **Fluor Corp.** After a pilot plant proves out the operation's economic soundness, a $6,000,000 plant will be built to turn out 100 daily tons.

## VENEZUELA

**Venezuelan Sulphur Co.** has been formed to develop large deposits of surface sulphur in Sucre. The concession covers some 43 square miles and ores are 20 feet or less below ground, averaging about 40% sulphur.

The concern was formed by six American industrialists and capitalists, according to **Benjamin S. Dowd** of **MacDonald Associates,** New York, who have retained **Arthur D. Little & Co.** to conduct a survey, now being completed, as to the practical application of a **Krupp** development which carries a guarantee of $13 a ton processing cost. The plant should process 100,000 annual tons, and is expected to be ready in about a year.

Members of the group, which plans to issue 1,000,000 shares of stock soon at $3 a share, bringing the shares outstanding to 2,200,000, include **John M. MacDonald,** chairman of **Loftus Engineering Corp.; John H. Ballantine,** chairman of **Neptune Meter Co.; Dante E. Broggis,** president of **Neptune Meter; Harry Watkins,** of **Bankers Trust Co.; William Morton** of Pittsburgh; **Harold L. Perlman,** of Chicago, and **Mr. Dowd.**

# CF STAFF—COMPILED TONNAGE REPORTS

FERTILIZER TONNAGE REPORTS (in equivalent short tons)
Compiled by COMMERCIAL FERTILIZER Staff

| State | September | August | July | June | April-May-June Quarter 1954 | April-May-June Quarter 1953 | Season 1953-54 |
|---|---|---|---|---|---|---|---|
| | | | | | April-May-June Quarter | | |
| Alabama | | | 13,793 | 46,696 | 426,488 | 330,840 | 1,024,312[1] |
| Arkansas | 11,649 | 5,303 | 5,930 | 28,420 | 147,461 | [2] | 366,225 |
| Georgia | 11,784 | 13,103 | 38,504 | 102,253 | 761,348 | 684,311 | 1,361,254 |
| Louisiana | 11,823 | 6,390 | 6,940 | 21,290 | 110,234 | 101,163 | 316,757[3] |
| Missouri | | 52,738 | 9,004 | 13,553 | 232,260 | 181,466[4] | 756,457 |
| N. Carolina | 41,805 | 29,582 | 9,205 | 72,232 | 694,799 | 685,359 | 1,815,572 |
| Oklahoma | 19,084 | 8,238 | 2,879 | 5,701 | 31,627 | 27,136 | 144,367 |
| S. Carolina | 20,722 | 11,033 | 8,667 | 12,845 | 160,908 | 191,677 | 936,558 |
| Tennessee | 19,435 | 9,921 | 23,256 | 65,414 | 322,123 | 306,971 | 523,300 |
| Texas | 36,139 | 12,688 | 15,472 | 35,210 | 169,970 | 155,857 | 562,530 |
| California | | (reports | submitted | quarterly) | 299,195 | | |
| Virginia | | (reports | submitted | quarterly) | 314,945 | 323,265 | 716,552 |
| Indiana | | (reports | submitted | quarterly) | 896,104 | 283,987 | 1,180,071 |
| TOTAL | 172,441 | 148,996 | 132,650 | 403,614 | 4,567,462 | 3,272,032 | 9,703,875 |

[1] 10 months, October-July [2] Not Compiled [3] September-August [4] Estimated from tag sales

# MARKETS

**GENERAL**: The outstanding feature at present is that though movement of mixed goods is not very strong the demand for organics, on account of the drastically reduced supply, is very strong.

**ORGANICS:** The fertilizer organic market continues extremely tight with all producers of Nitrogenous Tankage in a heavily sold position through June. Chicago Activated Sludge VITORGANIC, based on present production, is sold up from October through April and limited number of cars available for May/June, price now being $2.95 and 50¢, bulk, f.o.b. Chicago, Ill.

**CASTOR POMACE:** No offerings on this material for shipment through December and no quotations so far for January/forward.

**BLOOD:** Market continues extremely tight at $8.25 per unit f.o.b. Chicago with limited offerings.

**POTASH:** Delivery said to be fair. Sellers hope for gradual improvement during the quarter.

**PHOSPHATE ROCK:** Buyers appear to be in no hurry to move rock as the movement of Superphosphate is not very strong.

**SUPERPHOSPHATE:** There is no strong demand for 20% Superphosphate and supplies of Triple are rather plentiful at present.

**AMMONIUM NITRATE:** Buyers are slow taking on this material and producers have had to put material in storage.

**NITRATE OF SODA:** Price on this has been reduced to $47.75 bulk and $51.25 bagged in 100 lb. paper bags at the port.

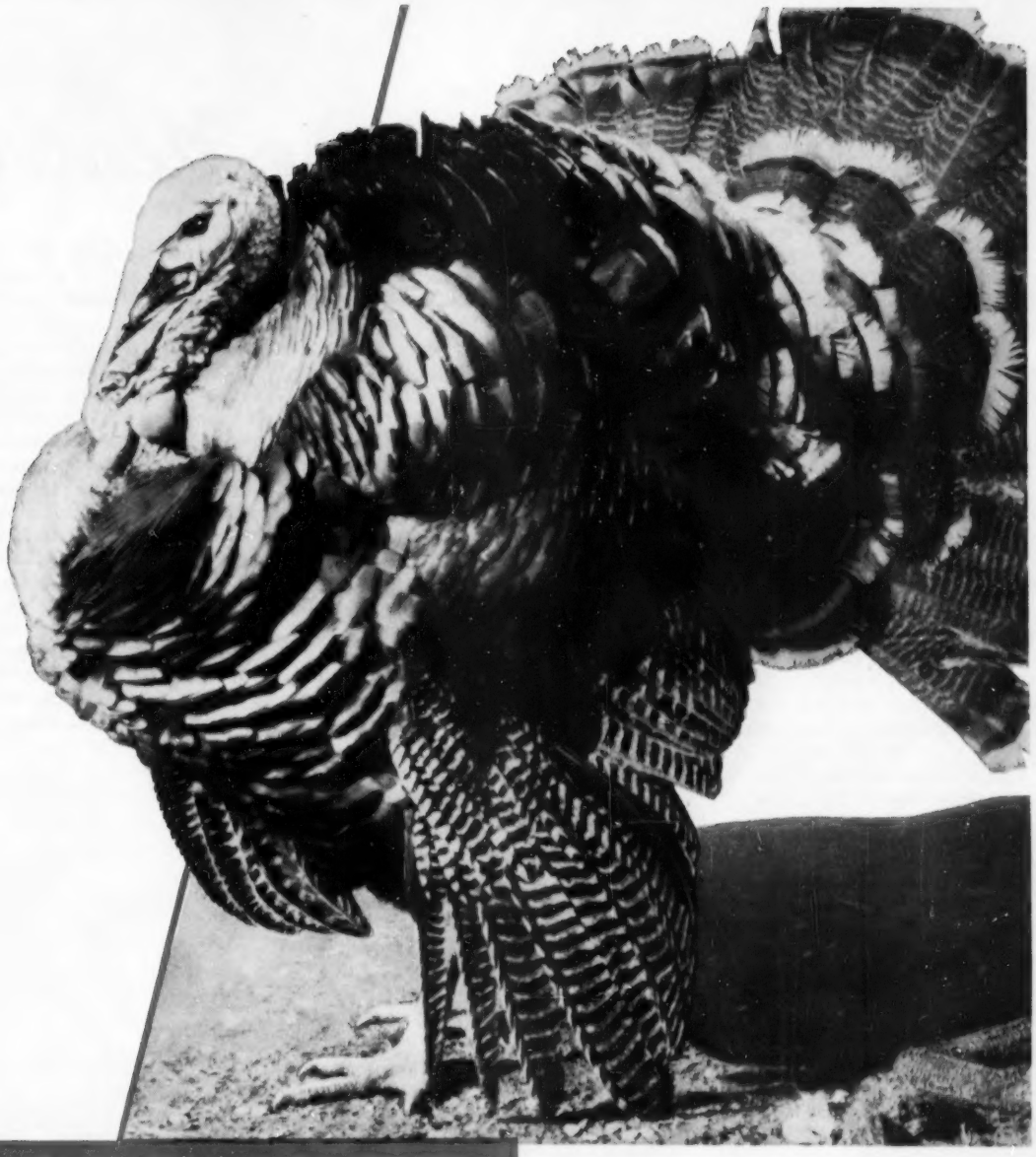
**GROUND COTTON BUR ASH**: This material will not be available for delivery until November/December due to short supply.

### New Payloader Attachments Published

"Useful Attachments for 'Payloader' Tractor Shovels" is the name of a new piece of literature offered by The Frank G. Hough Co. Included are sixteen attachments that are available to adapt these versatile tractor-shovels to many tasks in addition to bulk materials handling and earth-moving.

Illustrated and described are rotary "V" and trip-blade snow plows, hydraulic back-hoe, backfiller blade, crane hook, lift fork, lumber-log rack, pickup sweeper, cabs, winches, scarifier teeth, land-clearing rake, tine fork, etc.

The entire line of seven sizes of "Payloader" tractor-shovels, for indoor and outdoor use, are also shown. Copies of this literature are available from your Hough Distributor or The Frank G. Hough Co., 702 Seventh Street, Libertyville, Illinois.



# LET'S TALK TURKEY

New strains and new feeds have developed this fine gobbler for a Thanksgiving dinner that will make even Grandfather (who remembers the really big ones) whistle.

The soil continues its marvelous work in producing better feeds for better market animals through the addition of modern commercial fertilizers. Potash, an important component of these fertilizers, provides vital plant nourishment and strengthens crop resistance to disease, producing healthier crops and larger yields.

USP's higrade muriate of potash has the highest $K_2O$ content, and is free-flowing and non-caking—important advantages in the efficient production of these fertilizers that help America and turkeys grow.

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INCORPORATED

# GROWING RECOGNITION OF *Need for*

The fertilizer section of the National Safety Council is an earnest and hardworking group slated to accomplish a great good for the fertilizer industry—and with management's wholehearted backing they will. The group's meeting last month at Chicago's Hotel LaSalle, October 18-19, assembled the largest attendance of any safety meeting yet held by the industry.

Thirty members of the Executive Committee were on hand at the Sunday night meeting, October 17, to further complete plans for the two day meeting and to report on progress of the various committees since the committee's June meeting at the Greenbrier. The section's Three Year Plan (reported in full in Commercial Fertilizer's October issue) which was worked up by the committee is the first that any section of the National Safety Council has been progressive enough to make it is a blueprint to chart the section's course for a full three year period. The Plan, incidentally, has received many favorable comments from the management group.

The two afternoon sessions scheduled Monday and Tuesday for the fertilizer group, were preceded by luncheons; at Monday's luncheon, Louis Wilson acted as host to the group's Executive Committee for the American Plant Food Council; at Tuesday's luncheon the group's newly elected general chairman made an informal talk asking members to help him in his work to continue the forward program outlined in the Three Year Plan. The fertilizer safety section has come a long way but much yet must be done; in 1951 only three companies were members, now there are 60. Which is wonderful progress but a long way from the goal.

First speaker on the afternoon program was general chairman Vernon Gornto whose progress report is given in full elsewhere in this issue. He was followed by Dr. Charles W. Nelson, Director, Research & Planning, Industrial Relations Center, University of Chicago, who spoke on reaching the worker with the safety program. Dr. Nelson offered some interesting comments. Leadership style, he said, can build morale and cut accidents—the autocratic foreman can actually cause a worker to have accidents as opposed to the results achieved by the democratic type foreman. As the fertilizer industry moves from a primative to an automatic operation there will be a change over to a higher level personnel. A good job can be done in training stable workers so that they will blend in and influence the marginal workers, who account for the largest portion of accidents. As the industry motivation study develops the fertilizer industry will have some definite guide lines to chart a course for plant safety.

W. C. "Billy" Creel, Safety Director of North Carolina's Dept. of Labor, Raleigh, told the group about a small plant safety program that has worked for the folks in his state

1. Some of experts on panel: Front row: Elmer Perrine, Nitrogen Division, Allied Chemical & Dye Corp., New York, W. H. Henderson, Cooperative Plant Foods, Inc., Schererville, Tom Clarke, G.L.F. Soil Building Service, Ithaca N. Y., Curtis Cox, Virginia-Carolina Chemical Corp., Richmond; Back row: J. D. Acree, Crawford Chemical Co., Inc., Bartlesville, Okla., John Mark, Iowa Farm Supply Co., Des Moines, M. H. Talbott, Kingsbury & Co., Indianapolis, W. A. Stone Wilson & Toomer Fert. Co., Jacksonville, Fla. 2. John Miskelly, Olin Mathieson Corp., Baltimore, with some of the gadgets he used in his talk to fertilizer safety group. 3. C. J. Wilson, John E. Smith, and Harry Meyer, all with Spencer Chemical Co. 4. Incoming Chairman Tom Clarke, presents plaque to retiring Chairman Vernon Gornto.

# *Plant Safety* SHOWN AT MEETING

and will work for others. He said that the record of the 70 participating plants in North Carolina stands as a testimonial, showing what can be accomplished in the reduction of accidents. Although his 4 point program included use and distribution of safety material, posters, etc., and periodic visits by the head of the state agency, the most important function was the constant reminder of the need for safety and its benefits. Seventy-five percent compliance by the state's industries had resulted in a 40 percent reduction in accident frequency rates in 18 months. Most accidents stem from 3 factors: 1—plants are still looking for an easy solution to the safety problem; 2—Not enough emphasis is placed on good housekeeping; 3—In most plants its safety program doesn't work every day of the year.

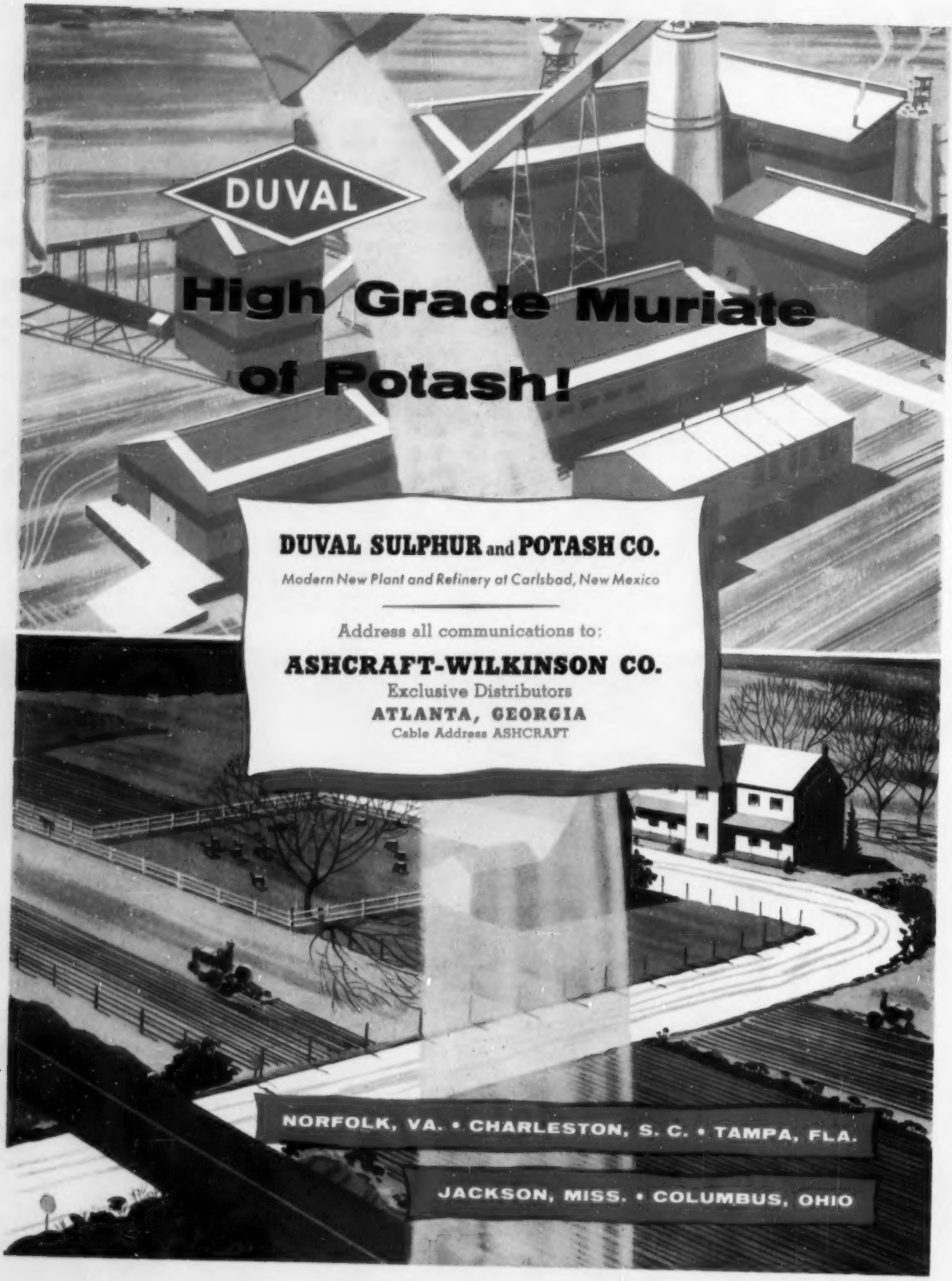
Monday's afternoon session wound up with its "Stump the Experts" panel, with Tom Clarke as moderator.

Elmer S. Perrine, Nitrogen Div., Allied Chemical & Dye Corp., NYC, spoke of the hazards of liquid nitrogen. Other hard to handle chemicals, he said, have been controlled to the point where there is no fear or real danger in handling them. Use of ammonia is growing so rapidly that knowledge of requirements in handling have not kept pace. But safety will come with experience.

J. D. Acree, Plant Manager, Crawford Chemical Co., Bartlesville, Okla., in talking about ideas in safety equipment told the group that a worker will only gain from use of equipment he understands (details of his talk appear elsewhere in this issue).

W. H. Henderson, General Manager, Cooperative Plant Foods, Scherville, Ind., told of the dangers of dynamite—which starts with its storage—magazines must offer protection from outside dangers that might be conducive to explosion. Plant handling requires that it be protected at all times, and never misplaced or unaccounted for, and close supervision given on all blasting.

**1.** E. O. Burroughs, Jr., F. S. Royster Guano Co., Norfolk, M. F. Wharton, Arizona Fertilizers, Inc. Phoenix, A. F. Ecklund, Farm Bureau Services, Lansing, Mich. **2.** A. E. Forrer, Jack Carter and R. C. Meldrim, all with Glens Falls Insurance Co., Chicago, Ott Austin. **3.** Curtis Cox, Virginia-Carolina Chemical Corp., Richmond, Charlie McDaniel, Lion Oil Co., El Dorado Dr. C. W. Nelson, University of Chicago, Chicago. **4.** George F. Dietz, Fertilizer Manufacturing Coop., Baltimore, Walter Lehle, Olin-Mathieson Chem. Corp., Baltimore. **5.** M. H. Talbott, Kingsbury & Co., Indianapolis, Gordon Pittock, Wm. Stone Sons, Ltd., Ingersoll Ont., Canada. **6.** C. J. Watts, Jr., Naco Fertilizer Co., Wilmington, F. A. Van Atta, National Safety Council, Chicago. **7.** B. J. Phillips, Coronet Chem. Co., Div., Smith-Douglass Co., Inc., Plant City, Fla., J. H. Rimmer, Smith-Douglass Co., Inc., Danville, Va.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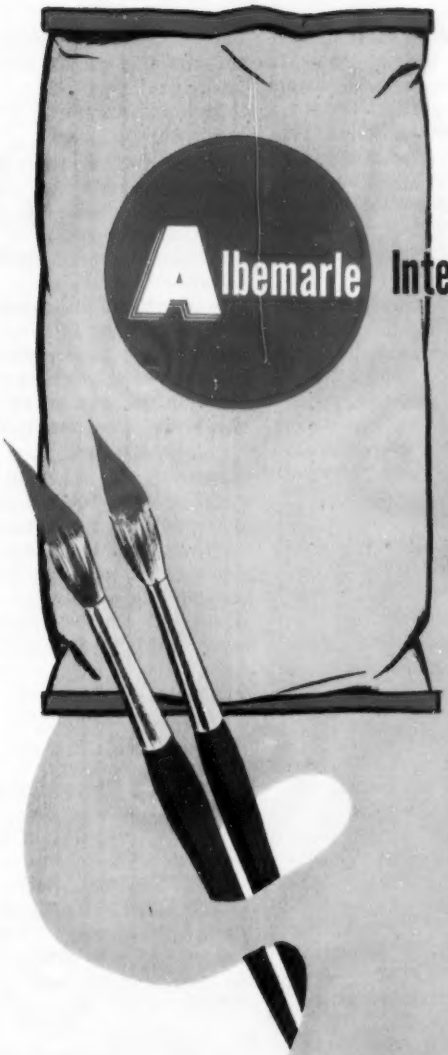

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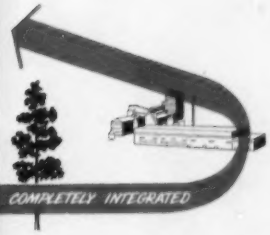


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Curtis A. Cox, Ass't Manager, manufacturing department, Virginia-Carolina Chemical Corp., Richmond, spoke briefly on fertilizer-pesticide mixtures—said that most plants are not equipped to give proper safety in handling these mixtures; that much work is to be done on it. Respirators, protective gloves and thorough clean-up after handling is minimum protection needed for a limited mix operation.

W. E. Powell, Division manager, Loss Prevention Dept., Liberty Mutual Insurance Co., Chicago, said that a plant of 25 needs a medical program just as much as a plant of 2500 and listed the points in a minimum medical program as follows: 1—Good case treatment by a doctor; 2—Close case follow up; 3—Keeping good records; 4—Adequate and sanitary facilities; 5—Pre-placement to fit man to the job; 6—Periodic examinations of employees; 7—Conduct in-plant health program to maintain health of employees.

Tuesday's afternoon session led off with a very comprehensive talk embracing the subject of safety by R. J. Rhinehart, Division Supt., Arkansas Power & Light Co., Little Rock, Ark. Overall, he said, safety has made some slight progress in the last year having decreased accidents by 1 percent, a small reduction but a step in the right direction. The total cost of industrial accidents is $3,150,000,000; days of work lost were equivalent to 1 million men working for a period of one year. If we can teach people to think about what they are doing at all times, he said, we can almost eliminate accidents due to errors in human judgement. One particularly telling comment was this: Management's interest in employee safety builds morale, lessens accidents.

Ray Murray, Plant Food Div., Swift & Co., Chicago, presented visual aids tailored for the fertilizer plant, said that learning is faster and greater through use of visual aids and a great aid in selling safety. Safety posters rank near the top in selling safety as they keep the subject of safety alive and point to specific hazards. The fertilizer industry's seasonal employment requires giving quick, impressive instructions to such employees and visual aids are the best means available.

Olin-Mathieson's John Miskelly, Director safety and plant protection, Baltimore, assembled an array of gadgets such as you've never seen before, (all for practically no cost) which he uses—and very effectively—to sell safety to his company's employees. After John's talk on the subject of safety, you just can't help being safety-minded; he showed what can happen when you tell and don't show workers what you want done; how a plant fire can be started when you think every precaution has been taken; how incorrect lifting can put such a strain on your back that it will cause irrepairable injury; and many other results a safe approach can prevent.

After John's presentation, the panel of experts took over the program. John Mark, Director, Iowa Farm Supply Co., Des Moines, in talking on interesting foremen in safety, made the point that it is necessary that the foreman realizes that production and safety go hand in hand, and if employees know he has their safety at heart it will help build morale and a team spirit that will promote plant safety.

Charlie McDaniel, Lion Oil Co., El Dorado, Ark., gave some pointers in handling anhydrous ammonia, spoke of a recent plant incident which touched off an explosion in a TVA ammoniator. It was found that a 98 percent acid was used,—should use 93 percent. Another recent mishap was caused by an ammonia spill, could have been prevented by wetting down. In this case a freak air current picked up the ammonia fumes, carried them several miles across town to one of the town's top residential sections where considerable damage was done to lawns, shrubbery, etc., resulting in legal fisticuffs.

A. E. Johnson, Safety Director, Illinois Farm Supply, Chicago, advocated plant-wide safety contests as a part of a safety incentive pro-

1. I. L. Edwards, Borger, Texas, O. C. Hampton, Dumas, Texas and Orvid Collins, Borger, all with Phillips Chemical Co. 2. W. L. Lewellyn, Iowa Farm Supply Co., Des Moines, Lyle Barndt, and James B. Harker, both with Farmco Services. 3. Tom Clarke, G.L.F. Soil Building, Ithaca, Curtis Cox, Virginia-Carolina Chemical Corp., Richmond, Ted Martin, president, Lion Oil Co., El Dorado, Ed Kapusta, National Fertilizer Association, Washington. 4. R. G Diserens, Phillips Chemical Co., Bartlesville, Jean Terry, Davison Chemical Co., Div. W. R. Grace Co., Baltimore, John Mark, Iowa Farm Supply, Des Moines.

gram; recommended dividing plant employees into teams—a plan which they have found works well.

Duncan McDonald, Safety Engineer, Anaconda Copper Mining Co., Anaconda, Montana, pointed out the dangers of triple superphosphate and acid handling and the safety rules needed to cope with them. M. H. Talbott, Superintendent, Kingsbury & Co., Indianapolis, gave the rules for safe tractor and tractor shovel operation; said that any man involved in an accident was immediately given intensive instruction in safety although his initial instruction in tractor operating covered all safety factors.

Grayson B. Morris, Assistant Manager, Cooperative Fertilizer Service, Southern States Cooperative, Richmond, outlined the key points in good plant housekeeping, stressed the need for a continuing program, not just when the production peak is over,—to make good plant housekeeping a real contributor to safety.

Other members of the panel scheduled for short talks were not able to present them as time ran out but we hope they will be available for publication in subsequent issues of Commercial Fertilizer. They were: W. A. Stone, Supt., Wilson & Toomer Fertilizer Co., Jacksonville —"Maintenance Hazards"; D. A. Williams, Manager, TV Fertilizer Plant, Fargo, N. D.,—"Blasting Problems"; Allan Brent, Vice-president for Production, Southern Fertilizer & Chemical Co., Savannah—"Reaching the Worker"; B. J. Phillips, Safety Director, Coronet Phosphate Co., Plant City, Fla.,—"Phosphate Mining"; R. G. Diserens, Safety Director, Phillips Chemical Co., Bartlesville, Okla.,—"Conveyors".

## OFFICERS ELECTED

General Chairman — Thomas J. Clarke, G. L. F. Soil Building Service, Ithaca, N. Y.; Vice-Chairman—Curtis A. Cox, Virginia-Carolina Chemical Corp., Richmond; Secretary—E. O. Burroughs, Jr.—F. S. Royster Guano Co., Norfolk.

## NEW MEMBERS EXECUTIVE COMMITTEE FOR 3 YEAR TERM

Elmer Perrine—Nitrogen Div., Allied Chemical & Dye Corp., New York; Rod Martenet—E. Rauh & Sons Fertilizer Co., Indianapolis; Vernon Gornto—Smith-Douglass Co., Norfolk; Ray Murray—Swift & Co., Chicago; Harold Krueger — Snyder Chemical Co., Topeka; A. B. Pettit—Davison Chemical Co., Div. W. R. Grace & Co., Baltimore; T. J. Clarke —G. L. F. Soil Building Service, Ithaca, N. Y.; J. Lauren Shopen—Consumers Cooperative Assn., Kansas City; John E. Smith—Spencer Chemical Co., Pittsburg, Kansas; A. L. Wall—International Minerals & Chemical Corp., Chicago; R. G. Diserens — Phillips Chemical Co., Bartlesville, Okla.; J. R. Terry—Davison Chemical Co., Div. W. R. Grace & Co., Bartow, Fla.; R. E. Bennett—Farm Fertilizers, Inc., South Omaha, Nebraska.

# PROGRESS REPORT ON SAFETY

*By* General Chairman VERNON S. GORNTO

**Vernon S. Gornto**

Twelve months ago we adopted 16 Goals for the Fertilizer Section. Most of you are familiar with the 16 Point Program. In the interest of time and economy I could perhaps simply report to you that all 16 of the Goals set last October have either been fully accomplished or are well on the way toward early completion. However, I will ask for your indulgence while I very briefly touch on just what progress has been made on several of the more important goals.

At the very ouset, please let me make it quite clear, that while I am delighted with the results achieved—I am at the same time aware of the fact that no special credit is due your general chairman for the splendid progress made—and let me say, right now, that I have never worked with a finer or a harder working group of men than we have on the executive committee of the Fertilizer Section of the NSC. The committee chairmen have, without exception, done an outstanding job. I have yet to have the first member of the Executive Committee decline to do any job which I have called upon him to do.—Also, let me say, that the three past General Chairmen: A. B. Pettit, Jack Fields, and John Smith are due much of the credit for the enviable position which the Fertilizer Section holds today. It was under their administration that much of the groundwork for the achievements of the past twelve months was laid. The Fertilizer Section and the entire fertilizer industry owe an undying debt of gratitude—not only for the splendid job each did during their individual administration as general chairman; but also for the fine work which A. B. Pettit and John Smith are continuing to do. Without the advice, counsel and help of A. B. and John, I would have been at a tremendous disadvantage this past year.

Our number one Goal last October was to increase membership. We all realize that without a large segment of the industry affiliated with the Fertilizer Section, and assisting with the work the Fertilizer Section is attempting to do in promoting Safety; we simply cannot be

At Fertilizer Section Meeting, National Safety Congress, Lincoln Room—LaSalle Hotel—Chicago, October 18, 1954.

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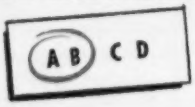

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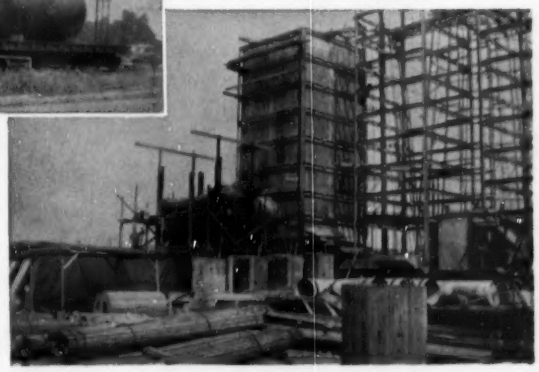
successful in achieving our many laudable objectives. Therefore, we placed increased membership at the very top of our 1953-1954 objectives. Under the leadership of Roger Hugg of IMC, the chairman of the membership committee, who was aided and assisted by all the members of the membership committee, and by many interested members on the executive committee, much progress has been made—as a result of the work of Roger Hugg and his committee, we can today report a very gratifying growth in membership. A 500% increase was made during the past twelve months. Last October we had only twelve fertilizer companies holding company membership in the National Safety Council. As of this morning we had 60 members. In October, 1951, the date of the first meeting of the Fertilizer Section, we had exactly three members. So, you see, that during the two years, October, 1951 to October, 1953, we had an increase of nine members or 400%. This year we experienced the greatest increase to date— and, although all of us are very pleased at what is generally acclaimed as the most outstanding record of growth of any new Section ever organized by the National Safety Council—nevertheless, and at the same time, we are far from satisfied. There are over 1,000 fertilizer companies in the United States and Canada; and everyone of the 1,000 should be members of the Fertilizer Section. I prophesy that next year we will be able to report a minimum of 150 members. Surely, each of you present today will want to help by securing at least one new member.

The second goal last October was to promote interest in Safety in each of the 1,225 fertilizer manufacturing plants in the United States and Canada. Certainly, safety is now considered—not merely as a necessary evil; but as an important adjunct to the production-and-also very important from the standpoint of profits to all of the fertilizer manufacturing companies everywhere.

A year ago we declared our intention of preparing additional data sheets. This was another of the 16 Goals set. The data sheets on anhydrous ammonia have been prepared and widely distributed. We hear nothing but the very highest commendation for them. It is felt that the engineering committee and the National Safety Council staff ought to be congratulated on the splendid job they did in preparing this very technical and comprehensive data sheet on Anhydrous Ammonia.

We now have underway, in various stages of production, data sheets on: ammoniating solutions, aqua ammonia, b l a s t i n g, mechanical handling of bulk fertilizer, phosphoric acid, nitric acid and storage and handling of bag material.

One of the most important Goals in our 16 Point Program of a year ago was, "Continuing the excellent publicity and public relations program which Larry Shopen had car-



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ried out so splendidly during the previous two years." We can write this one off as being 100% accomplished. Larry Shopen has done a perfectly marvelous job. We wish to thank Larry, and, also thank Commercial Fertilizer for the liberal space which they have given to the safety movement.

Another of our 16 Goals was—"Maintain the high standard of excellence of the Fertilizer Section news letter." We can also write this one off as being 100% successful. Tom Clarke is the number one editor of all the National Safety Council News Letter editors.

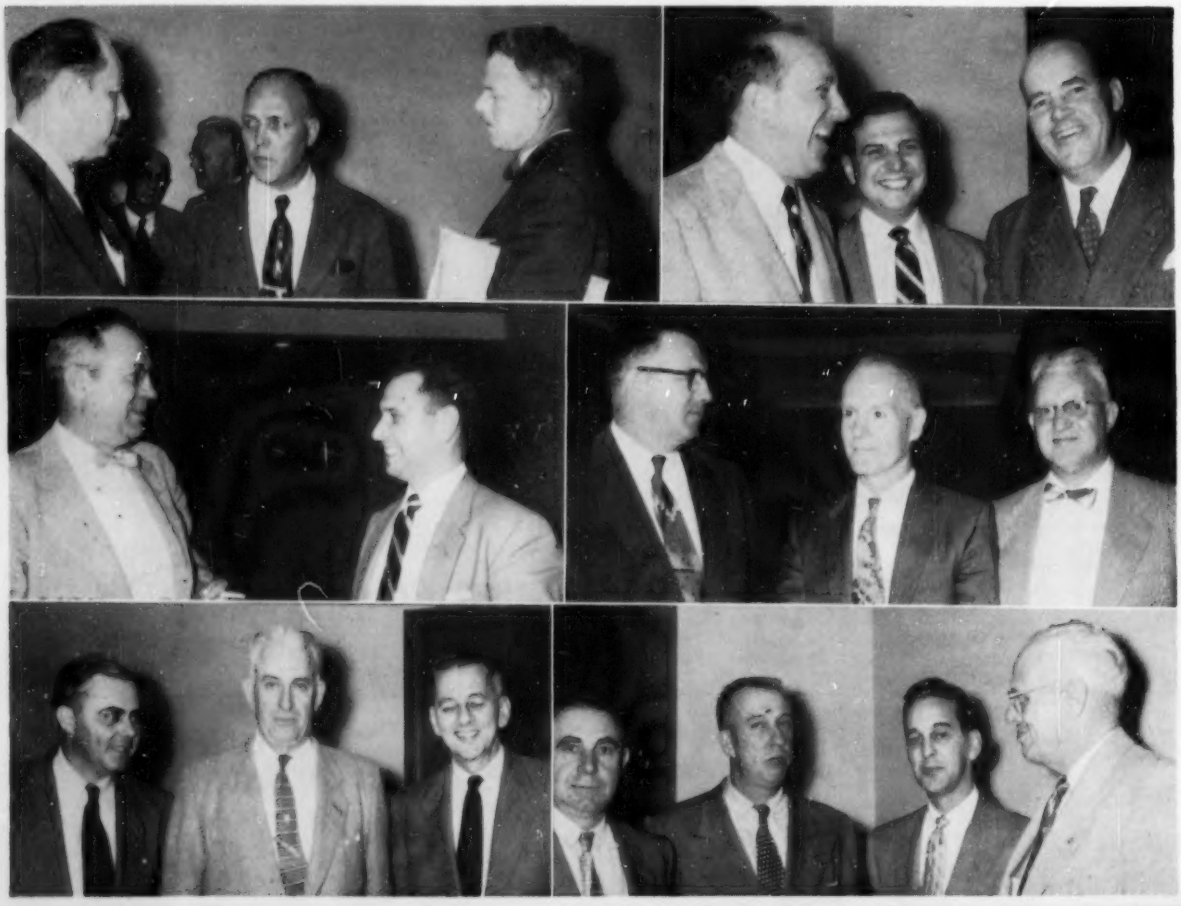
Our final Goal set one year ago was—"Arousing and maintaining a high degree of enthusiasm in the army of our members, among plant safety directors, production managers, and especially among representatives of "top management." We can claim 99% success in achieving this objective. Certainly there is no one connected with the fertilizer industry now that does not realize th importance of each company having and maintaining a successful safety campaign.

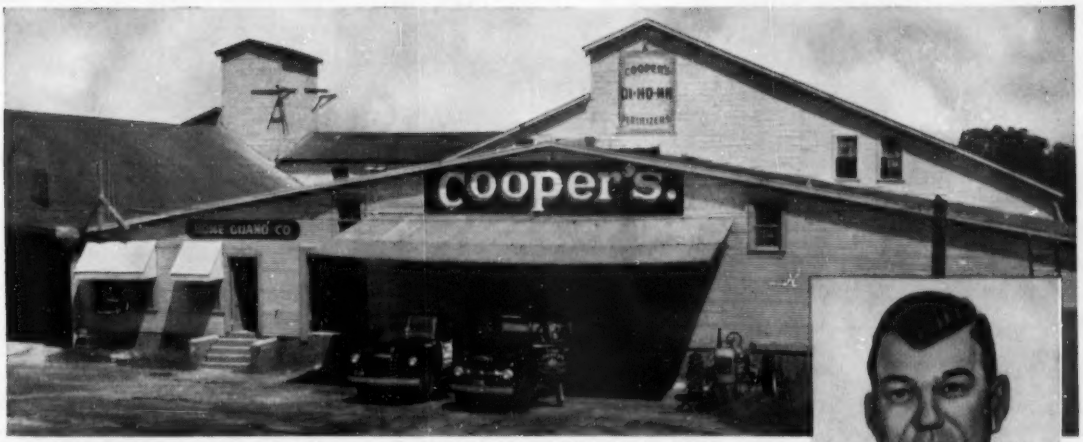
I have dwelt on only a few of the 16 Goals, and let me tell you that the Fertilizer Section did not stop with the 16 Objectives listed in our 16 Point program a year ago.

The most important thing the Fertilizer Section has yet done is the establishment of a "Three Year Plan," and this was not included in the 16 Point Program one year ago. All of you are—or certainly should be by now—thoroughly familiar with all the objectives, which the Executive Committee has outlined in our program for the next three years. John Smith and the members of his special Three Year Planning Committee did a grand job in drawing up a working chart for the Fertilizer Section to go by in its activities for the next three years. Copies of the Three Year Program are now available here in this room for each of you. Be sure you get one when the meeting adjourns. This is a first for the Fertilizer Section. Our Section is the only Section of the NSC to make detailed and specific plans for such a long period.

You have heard much already, and in just a few minutes, as soon as I conclude my report, you will hear more about the Employees Motivation Field Study. This is another first for the fertilizer industry. No other Section of the NSC has undertaken such a study. We believe you will be hearing about the Three Year Plan and the Employees Motivation Study for many years to come. A Research Committee has been added to the list of Standing Committees. You will also be hearing much from the Research Com-

1. W. E. Powell, Liberty Mutual Insurance, Chicago; A. B. Pettit, Davison Chemical Division, Baltimore; Wayne High, The Baugh & Sons Co., Baltimore. 2. Tom Clarke, G.L.F. Soil Building Service, Ithaca, N. Y., Ed Kapusta, National Fertilizer Association, Washington, Gordon Pittock, Wm. Stone Sons, Ingersoll, Ont., Canada. 3. Louis Wilson, American Plant Food Council, Ed Kapusta, National Fertilizer Association both of Washington. 4. John Mark, Iowa Farm Supply Co., Des Moines, Elmer Perrine, Nitrogen Division, Allied Chemical & Dye Corp., New York, George F. Dietz, Fertilizer Manufacturing Corp., Baltimore. 5. Curtis Cox, Virginia-Carolina Chemical Corp., Richmond, Vernon Gornto, Smith-Douglass Co., Inc., Norfolk, John Smith, Spencer Chemical Co., Kansas City. 6. Grayson Morris, Southern States Corp., Baltimore, Harold Krueger, Snyder Chemical Co., Topeka, Dick Bennett, Farm Fertilizers, Inc., S. Omaha.



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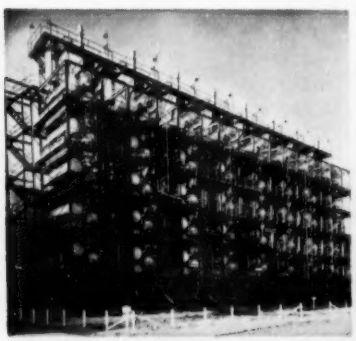

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mittee within the years immediately to follow. This is another "first" for the Fertilizer Section—another mile stone.

Since last year we have organized a third state fertilizer section. Yes, a Fertilizer Section has been organized in the South Carolina Annual Accident Prevention Conference. The original meeting will be held in Spartanburg, South Carolina on November 19. All of you are invited and urged to attend.

In closing this brief summary of the work done and the results accomplished during the past twelve months, I wish to thank all of the officers for their fine and loyal support. The vice chairman, Tom Clarke, and your secretary, Curtis Cox, have both done a superb job. Without the wholehearted, enthusiastic support of these two men we could never have experienced the wonderful success which we have achieved during the past six months. We also wish to thank all of the committee chairmen for the time and effort and the wonderful work which they have contributed toward the objective we are all striving for —namely, to make the fertilizer industry a safer place in which to work. We are deeply indebted to each member of the executive committee for their cooperation and support. We would especially like to thank Louis Wilson and Paul Truitt of the American Plant Food Council and Dr. Russell Coleman, and Ed Kapusta of the National Fertilizer Association for the invaluable assistance and cooperation which they have afforded us all during the past year.

It has been a lot of fun working with you men here today. I have enjoyed every minute of it. You are a wonderful group with whom to work.

Now . . . one final word—Let me urge each of you to resolve to keep up the fight to make the Fertilizer Industry a safer place in which to work. I know you will give your new general chairman the same splendid, wholehearted support you have given me.

# TOO MUCH SAFETY EQUIPMENT

J. D. Acree
Plant Manager, Crawford Chemical Co.
Bartlesville, Okla.

A friend who served on a cruiser in World War II in the Pacific, told of a Navy Pilot who ditched his aircraft not far from their ship. The pilot escaped from his aircraft but was noticed to be struggling violently to keep his head above water. The cruiser steamed over to him and lowered a stretcher to pick up what was evidently a badly wounded pilot. This was evident because of the struggle he was having in keeping afloat. Yet when they got the pilot on the stretcher and started lifting him out of the water they saw what his trouble was. The pilot had a thin cord tied around his waist and at intervals along this cord had tied on extra emergency equipment such as an extra 45 pistol, extra ammunition, an extra machete, and various items issued to pilots as emergency equipment. This pilot was so loaded down with emergency equipment that he could not have long survived in the water. This incident has made me think of this possibility:

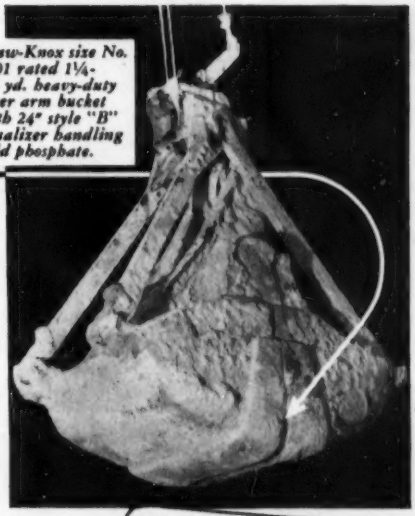
After we have made use of all practicable machinery safe guards is it possible to have too much personal safety equipment? Let us look at this from three viewpoints: (1) financial or economic; (2) a pure safety viewpoint; and (3) a viewpoint of morale. Safety equipment, we all know, is expensive, but if it prevents enough injuries it will pay for itself many times over. While goggles, for instance, cost money, the cost of the loss of one eye would buy many goggles. But acid proof clothing worn by a worker on a fertilizer sacking crew would probably never pay off.

Totally apart from any economic balance, consider the safety or emergency equipment the navy pilot had. If help had not been nearby he would have been in real trouble because of too much emergency equipment. This pilot would have been much safer with less equipment. Is it not possible that a full face mask might in some cases reduce the field of vision enough so that it would off set any advantage gained by using the mask? In some cases old style asbestos suits have hampered fire fighters in keeping clear of falling debris.

Safety morale or safety minded-

# BLAW-KNOX

## TIGHT-LIP BUCKETS...



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INDUSTRIAL AND AGRICULTURAL
CHEMICALS

ness is perhaps the most important phase of all. The attitude of a worker can vary from fear of injury because of lack of safety equipment to one of opposition to the use of safety equipment because of what the worker feels is unnecessary equipment. To err in this respect is more likely to be furnishing too few personal safety items, but I feel that it is also possible to have too much safety equipment.

Improper or inefficient safety equipment could give a false sense of security to a worker. So called "no sparking" tools have been known to spark and ignite inflammable mixtures. A worker using ordinary tools would check first to see if there was an inflammable gas present. In Western Kansas men using ordinary cannister gas masks tried to enter a petroleum storage tank to clean it. They luckily managed to get back out when they encountered a very low oxygen content atmosphere in the tank. With no gas masks the workmen cleaning the tank would have ventilated the tank to be sure it was all right to enter. In both cases the safety equipment the workers had gave them a false sense of security.

In another case a worker unloading sulphuric acid had a full slicker suit on with rubber boots, but had no goggles on. A leak spurted acid into his face, seriously injuring his eyes. His sense of security, because he had on safety clothes, was certainly false. If he had not had acid proof clothes he might have been more cautious, and might not have been injured.

In another sulphuric acid unloading operation a complete set of equipment was furnished: from safety hat, goggles, acid proof gloves to rubber boots. This was in the summer time in the Southwest. These items were worn on the day shift, but as soon as it was dark, off came the safety clothes and the goggles. "It's too hot," the operators said privately. "This whole thing is a lot of nonsense."

There has been recorded more than one accident in which a truck driver had an eye injury or loss from a piece of gravel flying into his eye from under the wheels of passing vehicles. Because of this we might say, have all drivers wear safety goggles while driving. If this regulation were enforced, I wonder how many miles from our plant a driver would be before he removed the goggles and hung them on a convenient knob. These situations would surely be building up a resistance or opposition in the workers' minds.

What I am trying to say is that proper safety equipment is more than furnishing an array of personal equipment. A worker will only gain from the use of equipment he understands and that includes understanding of the limitations of his safety equipment.

In any location there may be certain conditions that could lead to injuries. An intelligent, practical approach must be taken to determine the probable exposures. When the relative hazards have been determined, then protective devices should be selected for the most probable hazards. That is, the hazards should be understood and evaluated. An employee's recommendation should come in here. Then not only should the cost of the protective devices be considered but also their limitations and disadvantages. The attitude of the worker must be considered for he is going to be the one to determine how effective the safety equipment will be. It will not be effective hanging on a knob or nail or stuffed into the back of a locker nor will the cost of this equipment be justified because an injury must be paid for whether or not proper equipment is furnished. When the safety equipment is chosen then proper instructions must be given to the operator so that he knows and understands the equipment. Finally the worker should be reminded not once but continuously that there is one type of safety device that cannot be overdone. That is the safety device constantly worn, 24 hours a day, by every worker just 6 inches above his neck.

## Safety Council Publications Released

Accidents add to the cost of doing business. That's the theme of the National Safety Council's new booklet, "Plus Cost." The booklet tells concisely how accidents nibble at profits and outlines the "why" and "how" of accident control.

Intended specifically for those small firms with relatively few employees and no safety staff, "Plus Costs" sets down seven easy steps for eliminating accidents and suggests sources of help.

The booklet explains in non-technical terms just how these commonsense principles make for a good safety program and at the same time increase production.

Single copies of the eight-page booklet, attractively illustrated with two-color drawings, may be obtained by writing the Small Business Program, National Safety Council, 425 N. Michigan Ave., Chicago 11, Ill.

* * *

"Two-Wheel Hand Trucks," a recent addition to the National Safety Council's safetygraph series, outlines the proper maintenance and use of two-wheel hand trucks.

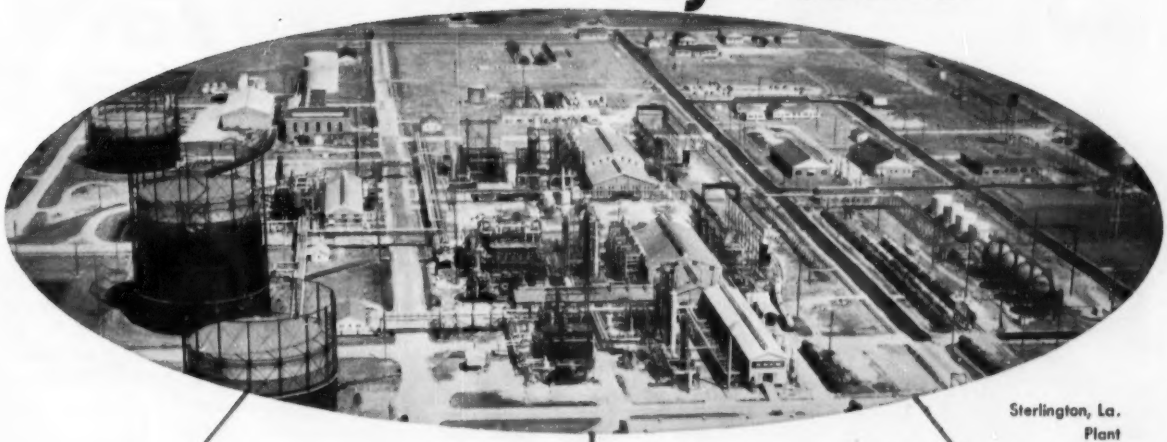
The safetygraph tells how to inspect trucks, proper methods of loading and unloading, how to handle light bluky cartons as well as small heavy boxes, the importance of keeping the load balanced, the use of dock plates and other information.

The Council's new visual aid provides a ready means of training small groups in the operation of two-wheel trucks. Consisting of 12 spiral-bound pages 18 x 24 inches inserted in a brown leatherette portfolio, the safetygraph can be set on any flat surface and opened to form an easel.

On the pages facing the audience are clear and accurate drawings showing the proper maintenance and use of two-wheel hand trucks. Notes for instructors are printed on the back pages in large easy-to-read

(Continued on page 64)

# CSC NITROGEN
## *in 3 Key Forms*



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Nitrogen solutions provide the lowest cost and most efficient media for quick curing of superphosphates. They supply more total N than any other ammoniating media. CSC Nitrogen Solutions offer the fertilizer manufacturer a wide range of physical properties to meet all requirements.

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# Personals

Dr. Werner L. Nelson to work with Dr G. N. Hoffer of American Potash Institute. Along with the investigations of fertilizer and lime requirements, Dr. Nelson has studied fertilizer placement, rotation effects, and plant and row spacing. In 1949 he became Director of the Soil Testing Division of the North Carolina Department of Agriculture. Since 1951 he has been in Charge of Soil Fertility Research.

Dr Nelson is program chairman of Division IV "Soil fertility, fertilizer, and plant nutrition" of the Soil Science Society of America. He has been a member of a number of national committees including chairman of the Committee on Fertilizers and chairman of the National Soil Test Work Group. He was chairman of Section 9 at the International Soil Science Society Meetings in Dublin, Ireland, in 1952. He is a member of the Soil Science Society of America, American Society of Agronomy, and American Association for the Advancement of Science. His fraternities include Phi Kappa Phi, Sigma Xi, Gamma Sigma Delta, and Alpha Zeta.

With his wife and two children, Dr. Nelson will reside in West Lafayette, Indiana.

Coincident with a complete regrouping of their multiwall sales force, **Hudson Pulp and Paper** have promoted **W. N. Cromwell** to Eastern and **B. C. Drumm** to Western sales managers. Cromwell joined them in 1949; Drumm in 1948. The new setup was announced by vice-president **T. H. Mittendorf** and multiwall salesmanager **Julian B. Mendelsohn.** Its purpose is to have an organization of salesmen highly skilled in the product and the problems of the customer.

* * *

**James N. Lowe,** who became acting chief of the **USDA** CSS fertilizer staff last Fall on the death of **Lewis G. Porter,** has become program officer on the staff of the **Commissioner of Indian Affairs.**

Edwin J. Pinigis who has joined the agricultural chemicals division of American Potash & Chemical Corporation as technical service representative, as announced recently by W. J. F. Francis, general sales manager, western.

With headquarters at the company's Eston plant at Los Angeles, Pinigis will work on formulation and application of agricultural chemicals for American Potash & Chemical Corporation which has its main plant at Trona, Calif., where various chemicals are manufactured for agriculture and industry.

**Arthur Labahn** is plant foreman of the **Farmco Fertilizer** plant at Antigo, Wisconsin, where anhydrous ammonia is about to be introduced; **Stan Schaefer** has been promoted to manager of their fertilizer division, and **Robert Sachtscale,** who has held that post becomes manager of the plant at Whitewater, Wisconsin.

* * *

**Charles Munson, Spencer Chemical,** spoke on fertilizer recently before the Kiwanis Club of Ottumwa, Iowa, and showed the APFC color film.

Harold Mazza, research process engineer for American Potash & Chemical Corporation at its main plant at Trona, Calif., who has been appointed assistant director of research for the company. He started with A P & C in 1929 as a sampler in the Control Laboratory.

Plants of the mixed fertilizer division, **Davison Chemical Company** Division of **W. R. Grace & Co.,** have been grouped into three districts, with managers reporting to **W. N. Watmough, Jr.,** Davison vice president, at Baltimore headquarters, it was announced October 11 by **Marlin G. Geiger,** president of Davison.

Mr. Watmough announced appointments as follows:

**B. C. Manker** to be central district manager at Lansing, Mich. He has been responsible for sales and operations of Davison's plants at Lansing and at Alliance and Columbus, O. He now has assumed, in addition, responsibility for plants at New Albany, Ind., Nashville, Tenn., and Findlay, O.

**John W. Ground, III,** to be western district manager, with headquarters at Joplin, Mo., where he has been located. He will be responsible for sales and operations at plants in

Left, Leonard J. Doyle, elected to the newly created post of vice-president, research, for Union Bag and Paper. Right, Harry M. Recher, made director of flexible packaging sales.

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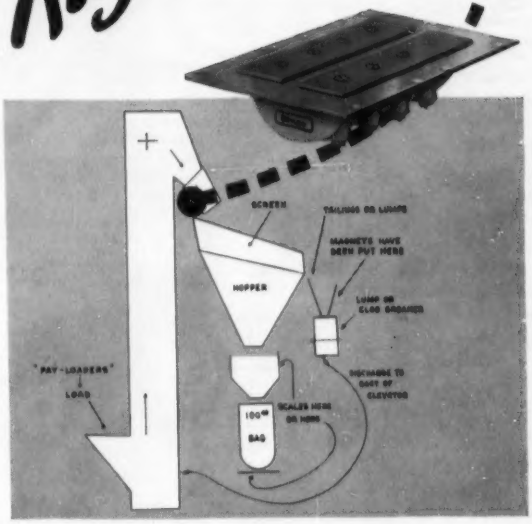


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Powerful, non-electric Perma-Plates pull out any iron — wire, nails, iron or abrasion—that gets into fertilizer, wrecks machinery and spoils product purity.

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**Dings Magnets**

Trenton, Mo., Tulsa, Okla., Perry, Iowa and New Orleans, La., as well as at the Joplin plant.

**Joseph F. Stough,** formerly general sales manager for **International Minerals and Chemical Corporation** at Chicago, Ill., joined Davison November 1 as southeastern district manager with headquarters at Charleston, S. C. He will have the responsibility for sales and operations, in addition to Charleston, for plants located at Wilmington, N. C., Spartanburg, S. C., Ft. Pierce and Jacksonville, Fla., and Savannah, Ga.

**George Klein,** for a number of years district manager at Nashville, Tenn., under the former set-up, is now general sales manager of the mixed fertilizer division, with headquarters in Baltimore.

**W. P. Stansbury** is promoted from operations manager to director of branch plant operations, mixed fertilizer division. His headquarters will continue at Baltimore.

**Joseph E. Reynolds, Jr.,** formerly at Joplin, Mo., is transferred to Baltimore as operations manager of the division and **E. L. Carnell,** former superintendent of the Savannah Plant, is transferred to Baltimore as production planning supervisor.

G. A. Gilbertson, vice president of The Frank G. Hough Co., Libertyville, Illinois, has announced the appointment of Jim Suter to the post of sales engineer. Mr. Suter's background of engineering plus four years as a Hough district representative and two years as assistant sales manager for the Hough distributor has equipped him well for his new duties.

In Mr. Manker's district, **John Detgen** is made assistant manager at Columbus, O., where **M. C. Evans** is manager, with responsibility for sales in the territories served by Alliance, Columbus and Findlay, O., plants, and **E. S. Jackson,** assistant manager at Nashville, is made manager at that plant.

Under Mr. Ground at Joplin, **A. C. McCall** is appointed manager with responsibility for sales and operations at Joplin and Trenton, Mo., and Tulsa, Okla. He was formerly assistant branch plant manager at Columbus, O.

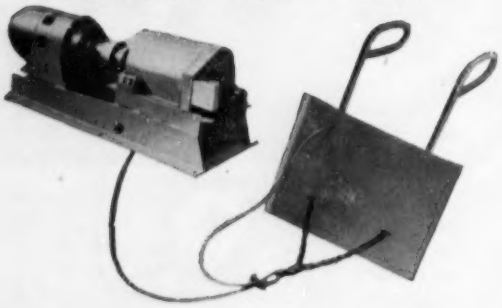
Under Mr. Stough, **U. S. Aaron** is promoted from sales manager at Savannah, to manager with responsibility for sales and operations at Charleston and Spartanburg, S. C., and sales at Savannah, Ga. He will be located at Charleston.

**Chandler Smith** is promoted from manager at Ft. Pierce, Fla., to assistant manager in charge of sales for Charleston and Spartanburg, S. C., and Savannah, Ga. He will also be located at the Charleston district office headquarters. **A. C. Gordy** is promoted from assistant manager to branch plant manager at Ft. Pierce, Fla. **R. L. Johns** is promoted from assistant manager to branch plant manager at Jacksonville, Fla.

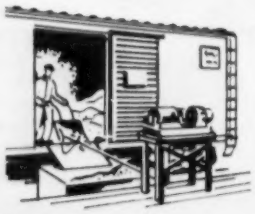
* * *

A new assistant manager for their Dallas, Texas plant has been named by **Fulton Bag. T. Raymond Berry** succeeds **Fred G. Barnet,** who was


**JEFFREY POWER SCOOP**



For unloading bulk material from box cars, this Power Scoop provides positive control, assures safe operation. It is fully automatic, light in weight, easily moved backward and forward. Drawing shows material being moved to car door for discharging into hopper — or chutes, elevators and conveyors. Write for more information.



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**Calcium Ammonium Nitrate, 20.5% Nitrogen**

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**Ammoniated Base and Superphosphate**

**Dolomitic Lime**
(42-44% Magnesium Carbonate)

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For more than 50 years Armour fertilizers have been "making every acre do its best". Farmers know that Armour's highest-quality fertilizers are made right and cured right to give best results with all crops.

Every bag of fertilizer sold by Armour is backed by years of painstaking scientific research in the fields of chemistry and farming. Testimonials from every section of the country—on all types of crops—prove that Armour fertilizers make increased yields of better quality crops that bring higher profits.

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**ATLANTA UTILITY WORKS**
EAST POINT, GA.

named manager earlier this year. Berry joined Fulton's Dallas office fifteen years ago, and at the time of his promotion was in charge of multiwall paper bag sales.

* * *

**M. C. (Red) Yerigan** has been appointed a sales representative in the Northwest territory by **Hammond Bag & Paper,** Wellsburg, W. Va., as announced by **M. E. Greiner,** vice president and general manager. Mr. Yerigan, well known to the trade, formerly represented **Fulton Bag.** He will make his headquarters in Minneapolis and will assist **J. O. Michelson** in servicing accounts in Minnesota, Iowa, North and South Dakota.

* * *

Three key men in **Diamond Alkali** were appointed October 15 by **A. H. Ingley,** vice-president-manufacturing to top positions at the company's Muscle Shoals (Alabama) plant, which was recently purchased from the government. They are: **Steve Puschaver,** who will become plant manager; **J. R. Horacek,** who has been named assistant plant manager, and, **John W. Whittleman,** who will be personnel manager.

The three assumed their posts when Diamond took possession of the plant on October 28. Puschaver joined Diamond in 1941, Horacek was first employed at Diamond in 1933.

Whittleman has served as staff assistant in personnel since May, 1953. His previous experience includes employment as director of labor relations of the **Rheem Manufacturing Co.,** Houston.

* * *

**Kenneth F. Rupp** has joined the sales organization of the **Hammond Bag and Paper** and will represent them in southern Indiana and Kentucky, according to an announcement by **M. E. Greiner,** vice president and general manager.

Mr. Rupp recently resigned his position as assistant sales manager for **Raymond Bag,** after 31 years of service, and has many friends in the trade. His headquarters will be at

**General Sales Manager**

The transfer of Everett C. Horne from Indianapolis to their New York office has been announced by Bradley & Baker, fertilizer sales organization.

Mr. Horne, who formerly was a sales representative in the Indianapolis office, will assume the position of General Sales Manager of the Fertilizer Division at the Bradley & Baker head office.

Replacing Mr. Horne in Indianapolis will be Mr. Edwin T. Baker, who will work out of the Bradley & Baker office in the Board of Trade Building.

**ALUMINUM TANK**
9'-0" Diameter x 30'-0" Long
12,825 Gallons

"Cole" can furnish tanks made of **steel, aluminum** and **stainless steel** — built in accordance with ASME Code to meet all insurance requirements. Measuring tanks of Stainless Steel are carried in stock.

We invite your inquiries for Storage Tanks to handle Ammonia and Nitrogen Solutions. Anhydrous Ammonia—complete with fittings. Also Elevated Water Tanks, Acid or Oil Storage Tanks, Bins, Boilers, Stacks, etc.

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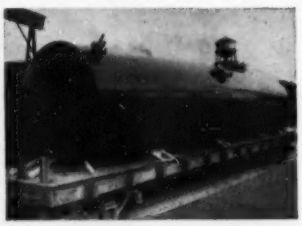

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16,500 Gallons

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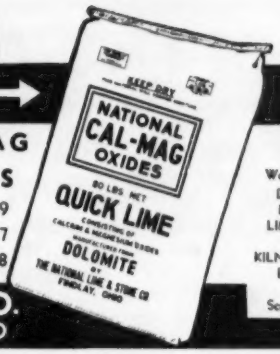


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* * *

**Spencer Chemical** has announced the promotion of **Dr. A. J. Deutschman, Jr.**, from assistant director of research and development to director of chemical research. Dr. Deutschman joined Spencer in 1947. The company also announced that **Dr. T. R. Hopkins** joined its chemical research department as a group leader. Both are located at the Jayhawk Works at Pittsburg, Kansas.

* * *

**Ervin L. Peterson,** whose recess appointment by **President Eisenhower** as assistant secretary of agriculture was announced October 15 by the White House, comes to the Department with nearly a quarter century's experience in dairy and general farming, and in agricultural leadership and administration, according to Secretary of Agriculture Ezra Taft Benson. Mr. Peterson's appointment will be effective November 15.

**Production Manager**

Raymond W. Keller who has been appointed staff production manager of the plant food division of International Minerals & Chemical Corporation, according to an announcement by Maurice H. Lockwood, vice president in charge of the division. His headquarters will be in the Chicago offices of the corporation. He will report directly to Mr. Lockwood.

Three major personnel promotions have been made by **American Potash & Chemical Corporation,** Los Angeles, as a part of the company's current development and expansion program, it has been announced by **Peter Colefax,** president of the company.

**George S. Wheaton,** formerly assistant vice president of the company's **Eston Chemicals Division** at Los Angeles, has been promoted to vice president in charge of that division. In addition to his responsibilities at Eston, Wheaton is active in **American Lithium Chemicals, Inc.,** recently-formed Lithium manufacturing company controlled by American Potash & Chemical Corporation. He will also have duties in connection with **Western Electrochemical Company,** in which American Potash & Chemical Corporation has a substantial interest.

**Thomas F. Edson,** formerly assistant vice president of research and development, is promoted to a newly-created position of vice president


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in charge of special engineering projects. He will be in charge of construction and initial production of the new $6,000,000 American Lithium Chemicals, Inc., manufacturing plant near San Antonio, Texas. Edson has been responsible for the selection of the lithium plant site and for engineering on the plant.

**Richard J. Hefler,** secretary of the company, goes into a newly-created position as assistant to the president. He will also continue his duties as secretary.

* * *

Announcement is made by **J. E. Totman,** president of **Summers Fertilizer** of transfer of **Howard J. Miller,** formerly assistant secretary of Summers, to the **Kapco Division** of Summers at McKeesport, Pennsylvania. There he will be assistant to **P. P. Rosette,** divisional manager. Mr. Miller has been associated with Summers and its affiliated companies for the past eight years. During this time, he was on furlough overseas for two years as Captain in an artillery unit in Germany.

Matthew F. Keane, who has been appointed to the sales staff of **Raymond Bag.** A native of Chicago, he has specialized in paper sales to the industrial field throughout the Middle West since his graduation from Loyola University five years ago. With Raymond, he will reside in Cleveland, Ohio, and will be responsible for multiwall paper sack sales in Northern Ohio and Northwestern Pennsylvania.

## Safety

(Continued from page 56)

type. Thus foremen with little speaking ability are provided with both notes and visual aids in one ready-to-use package.

Information on prices may be obtained by writing the National Safety Council.

The National Safety Council's new book, "Safety Devices and Ideas," describes more than 90 safety devices which have been tried and found effective in plant use.

The devices were originally part of a safety gadget show presented during the chemical sessions of the 1953 National Safety Congress. Although designed for use in chemical plants, the devices have application in other industries as well.

Most of the devices are not commercially available, having been thought up and constructed by plant personnel to meet some particular hazard.

Each idea is illustrated with a large photograph which shows clearly the details of construction. The text accompanying the pictures gives other pertinent data.

"Safety Devices and Ideas" is available for $1.25 to Council members and $2.50 to others. For further information write the National Safety Council.

## Union Offers Bulletin On Bag Closing Machines

A new illustrated bulletin entitled "Suspended Head Bag Closing Machines" has just been issued by Union Special Machine Company, Chicago manufacturer of industrial sewing machines.

The bulletin illustrates and describes a simple and popular line of machines which are capable of handling a wide range of work. These machines are designed for cable suspension from overhead mounting, using either a top balance or counter-weight. The sewing head is complete with built-in motor, finger tip controls, automatic brake, and chain cutter. The complete machines are readily portable and can be hung up and plugged in at any location. An important advantage is that the machines will handle all weights of bags, whether textile or paper, with good rates of production. For this reason, the equipment is well adapted for handling all requirements in small plants or general utility service in larger plants.

**PETROCHEMICALS**
**Challenging Opportunity for Men with Executive Ability**

Sohio offers executive positions in its agricultural chemical sales department now being formed to market the output of its new plant. Unusual possibilities for experienced and dynamic persons. Previous experience in fertilizer and agricultural chemical sales desirable.

Applications and full particulars, which will be held confidential, should be addressed to:

**Petrochemicals Division**
**THE STANDARD OIL CO. (OHIO)**
**MIDLAND BLDG., CLEVELAND**

Interested readers may obtain copies by addressing requests for new bulletin No. 201 to Union Special Machine Company, 412 N. Franklin St., Chicago 10, Illinois.

## "Ceresan" Fights Wheat Killer

Flourishing green wheat alongside patches of "moldy" winterkilled wheat this spring has proved the success of a chemical spray treatment to prevent "snow mold" in several wheat fields in Washington and Idaho. These test fields happened to be in areas where winterkill due to "snow mold" wiped out, or damaged severely, unsprayed wheat —as it often has in many Northwest wheat fields in years past. But sprayed wheat came through in fine shape, even where early winter snows had fallen on unfrozen ground, and deep snow had remained late in the spring. The chemical that produced these results is Du Pont "Ceresan" seed disinfectant.

## A P & C Announces Tumbleaf-ML

A new liquid cotton defoliant, Tumbleaf-ML, has been developed by the Agricultural Chemicals Department of American Potash & Chemical Corporation's Eston Chemicals Division. Tumbleaf-ML, is a colorless liquid, completely soluble in water and will not clog equipment or stain cotton. In addition, it

# CLASSIFIED ADVERTISING

For Sale, Exchange and Wanted Advertisements, same type now used, EIGHT CENTS a word for one insertion; TWELVE CENTS a word for two insertions; FIFTEEN CENTS a word for three insertions, and FOUR CENTS a word for each insertion more than three; ADVERTISEMENTS FOR THIS COLUMN MUST BE PAID IN ADVANCE.

**FOR SALE:** Complete dry mixing fertilizer plant and properties, buildings and equipment only 4 years old, located in middle of fast growing west central Georgia. Business has shown good profit for years. Capacity 30 Tons per Hour. I'm 76 and want to retire. Write, phone or see A. A. Britt, Sr. Thomaston, Georgia.

**FOR SALE:** Dry Mixing Fertilizer Plant. Good condition. Capacity ten thousand tons. Located in North Alabama; two railroads, Tennessee River, seven paved highways, paved farm to market roads. Well established trade. Box #15, c/o Commercial Fertilizer, 75 Third St., N. W., Atlanta, Georgia.

**STEEL TANKS** for sale: (8) 15,000 gal. Vertical Welded Steel Processing Tanks with coils and Turbo agitator drive with 40 HP 3/60/220-440 gearmotor. Also (1) 150,000 gal. Steel Tank 35'D x 21'H. Perry Equipment Corp., 1423 N. 6th St., Philadelphia 22, Pa.

**WANTED:** Job as Plant Superintendent in Georgia, not interested in other locations. Several years experience as Superintendent of Dry Mix and Acidulating Plants. Would consider job as Assistant under certain conditions. Am employed at present but desire change. Box #71, c/o Commercial Fertilizer, 75 Third St. N. W., Atlanta, Ga.

**SITUATION WANTED:** Chemical Engineer available. Age 32. Eight years experience including Production, Maintenance, Purchasing and Personnel. Box 49, c/o Commercial Fertilizer, 75 3rd St., N. W., Atlanta, Ga.


**Wiley & Company, Inc.**
Analytical and Consulting Chemists
Calvert & Read Streets
BALTIMORE 2, MD.

**LAW & COMPANY**
Founded 1903
FERTILIZER CHEMISTS
Three Convenient Laboratories
P. O. Box 1558 Atlanta, (1) Ga. | P. O. Box 789 Montgomery, Ala. | P. O. Box 629 Wilmington, N. C.

**VERMICULITE FINES**
(Fertilizer Conditioner)
Truck and Carload Quantities
American Vermiculite Company, Inc.
Phones 2201 & 2301
Roan Mountain, Tennessee

**SHUEY & COMPANY, INC.**
Specialty: Analysis of Fertilizer Materials and Phosphate Rock. Official Chemists for Florida Hard Rock Phosphate Export Association. Official Weigher and Sampler for the National Cottonseed Products Association at Savannah; also Official Chemist for National Cottonseed Products Association.
115 E. Bay Street, Savannah, Ga.

**PULVERIZERS**
Specializing in the reduction of
PHOSPHATE ROCKS
AGRICULTURAL LIMESTONE, ETC.
Capacities: 1 to 50 Tons per Hour
Catalogs on Request
BRADLEY PULVERIZER CO.
ALLENTOWN, PENNA.

● Process Consultants
● Designers
● Builders
**The D. M. WEATHERLY CO.**
830 Ponce de Leon Ave., N.E.
Atlanta, Georgia

**SOUTHERN STATES PHOSPHATE and FERTILIZER CO.**
SAVANNAH, GEORGIA
Manufacturers of SULPHURIC ACID, SUPERPHOSPHATE, COMPLETE FERTILIZERS
and ALL TYPES OF BASE GOODS
EXPORT ORDERS SOLICITED

contains no boron, a desirable feature in areas in which soil has an oversupply of boron chemicals. American Potash & Chemical Corporation's Tumbleaf, developed two years ago, contains boron and is suitable for areas with a deficiency of the chemical.

Full information can be obtained by writing Agricultural Chemicals Department, Eston Chemicals Division, American Potash & Chemical Corporation, 3100 East 26th Street, Los Angeles 23, Calif.

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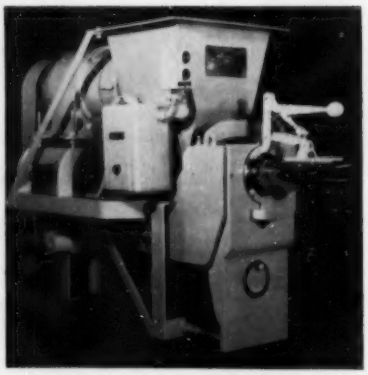
### "Manzate" Fungicide Protects Spinach, Tomatoes, Cantaloupes

Rio Grande Valley spinach yields have been boosted an extra 10 per cent in blue mold control tests with a comparatively new product, "Manzate" maneb fungicide developed by DuPont. This material has also proved effective against each of the three major fungous diseases affecting tomatoes in South Texas—early blight, late blight and gray leaf spot. In addition, "Manzate" is the first single material to show outstanding promise for control of both downy and powdery mildew on cantaloupes.



A new, smaller, more economical bag packer is now available from the H. L. Stoker Company of Claremont, California. During extensive tests in commercial operations, this new bagger, called the Econo-Speed Model 54, for-exceeded the performance expected by the designers it is said.

The Stoker Econo-Speed Packer fills valve or open-mouth bags and drums. It delivers 1 cubic foot in 5 to 10 seconds, depending on the material handled.

Delivered as a complete package, the Econo-Speed merely has to be plugged in to the electrical circuit to operate.

Stoker Econo-Speed Bag Packers are designed to handle practically any powdered or granulated material such as sulfur, pulverized coal, clays, rosin, paint pigments, asbestos, some plastics, titanium, alfalfa meal, insecticide dusts, certain fertilizers, many other hard-to-handle materials.

The face on the left is probably a new one to most of our readers; it belongs to Bill Cook of the sales department at The Norris Fertilizer Co. (subsidiary of The Baugh & Sons Co.) in Rushville, Ind. But Plant Manager Bruce Golightly, on the right, is undoubtedly a familiar sight to many after his 31 years with Baugh at Portsmouth, (Va.), Philadelphia, and more recently at Rushville. A native of Winchester, Va., he get back occasionally to visit the portion of his family that still lives there, but there aren't many others he recognizes in Winchester after living elsewhere for so long. In Rushville, however, it's a different matter . . . between business contacts and the activities of his family, he has formed many friendships. One of the younger generation of Golightlys is married and lives in Philadelphia, but there are still three others at home. The day we were in to see him, Mr. Golightly was busy with arrangements to install some new bagging facilities at the plant, but he believes that bulk sales—already accounting for 10-15% of plant production only two years after first being offered—will soon account for the greater part of their output.

*For Bagging* **—VITORGANIC—** *For Mixing*
(Chicago Activated Sludge)
"THE ALL-ORGANIC PLANT FOOD WITH THE BUILT-IN CONDITIONER"
CHICAGO FERTILIZER COMPANY
Exclusive Sales Representatives
ALEX. M. McIVER & SON
P. O. Box 155 Charleston, S. C. Tel. 3-4828-29

THE DOWD PRESS, INC. — CHARLOTTE N. C.

# THANKSGIVING

This great American tradition gives time to gather with family and friends with thanksgiving for the past and hope in the future.

When looking ahead, one thought worth considering is: What the future has in store for all of us depends in large measure on what we place in store for the future.

## POTASH COMPANY OF AMERICA

**Carlsbad, New Mexico**

*General Sales Office* . . . 1625 Eye Street, N.W., Washington, D. C.
*Midwestern Sales Office* . . . First National Bank Bldg., Peoria, Ill.
*Southern Sales Office* . . . Candler Building, Atlanta, Ga.

# Engineered

## to meet modern PRODUCTION REQUIREMENTS

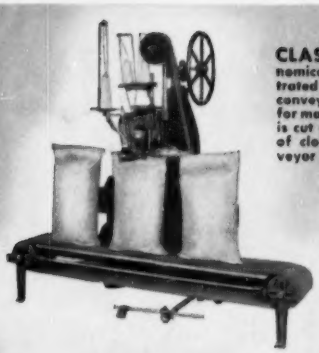
NO two jobs are exactly alike — that's why Union Special builds a wide variety of bag closing equipment. In the Union Special line you will find machines for closing all sizes and kinds of bags from small textile or paper bags of one pound, or less, up to the largest multiwall paper bags in use today. Whether your production schedule calls for closing just a few bags or for high continuous output, Union Special can supply the equipment to do the work efficiently, economically, dependably!

Coupled with a complete line of equipment is Union Special's vast background of experience and technical know-how that insures customers of getting THE RIGHT MACHINE FOR THE JOB!

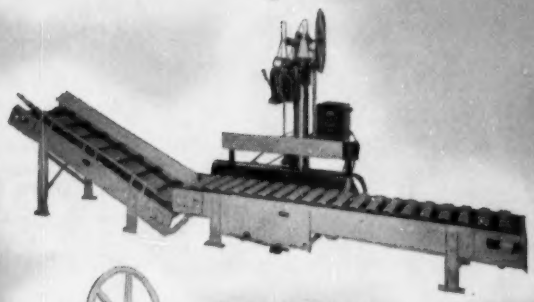
Union Special representatives located in all leading industrial centers are qualified by experience and training to give you expert recommendations. Take advantage of the service they offer.

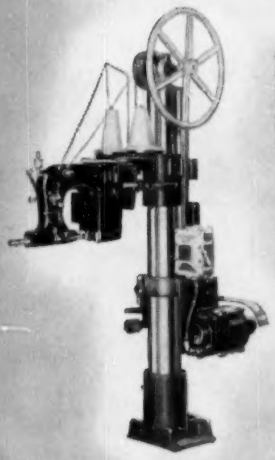
*Ask for recommendations.* UNION SPECIAL MACHINE CO., 412 North Franklin St., Chicago 10, Illinois.

**Send for Bulletin 200**



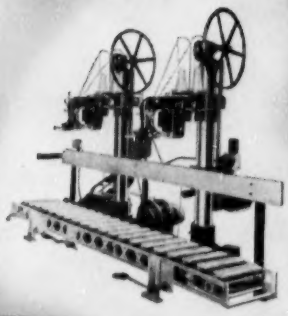
**CLASS 21800** (*left*) for fast, economical closing of paper bags. Illustrated is Style 21800 H with 5 ft. conveyor and 80600 H sewing head for making tape bound closure. Tape is cut off automatically at each end of closure. Sewing head and conveyor adjustable vertically.





**CLASS 20500** (*above*) machines are heavy duty, high production units for closing medium and heavy weight bags. Available with power-driven horizontal conveyor, inclined conveyor, or both; or with conveyor transmission unit only, for plant production line.

**STYLE 20100 H** (*left*), is a heavy duty, high production column type machine designed for use with plant conveyor systems. Sewing head is pedal controlled.



**DUPLEX MACHINES** (*right*) are designed for closing double bags. The first sewing head closes the inner bag; the second closes either the outer bag alone, or both bags together for extra safety. Also recommended for single closures where continuous operation is a must — operator can instantly switch to other head.

Union Special®

## BAG CLOSING MACHINES